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CFETP 2P0X1
Parts I and II
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AFSC 2P0X1

PRECISION MEASUREMENT EQUIPMENT LABORATORY

CAREER FIELD EDUCATION

AND TRAINING PLAN

CAREER FIELD EDUCATION AND TRAINING PLAN
PRECISION MEASUREMENT EQUIPMENT LABORATORY SPECIALTY
AFSC 2P0X1

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CAREER FIELD EDUCATION AND TRAINING PLAN
PRECISION MEASUREMENT EQUIPMENT LABORATORY SPECIALTY
AFSC 2P0X1

PART I

PREFACE

1. This Career Field Education and Training Plan (CFETP) for AFSC 2P0X1 Precision Measurement Equipment Laboratory (PMEL) Specialty, is a comprehensive education and training document that identifies life-cycle education/training requirements, training support resources, and minimum core task requirements for this specialty. The CFETP will provide personnel a clear career path to success and instills rigor in all aspects of career field training. Information is available at AF/A4MM web page:
https://afkm.wpafb.af.mil/ASPs/CoP/OpenCoP.asp?Filter=OO-LG-AF-35
Note: Civilians occupying associated positions will use Part II to support duty position qualification training.

2. The CFETP consists of two parts. Supervisors to will use both parts to plan, manage, and control training. Using guidance provided in the CFETP will ensure individuals in this specialty receive effective and efficient training at the appropriate point in their career. This plan will enable us to train today's work force for tomorrow's jobs.

2.1 Part I provides information necessary for overall management of the specialty. **Section A** explains how everyone will use the plan. **Section B** identifies career field progression information, duties and responsibilities, training strategies, and career field path. **Section C** associates each level with specialty qualifications (knowledge, education, training, and other). **Section D** indicates resource constraints to accomplishing this plan, such as funds, manpower, equipment, and facilities. Section E identifies transition training guide requirements for SSgt through MSgt.

2.2 Part II identifies the Specialty Training Standard (STS) and includes duties, tasks, technical references to support training; Air Education and Training Command (AETC) conducted training, wartime course/core task and correspondence course requirements. Part II includes the following: **Section A** contains the course objective list and training standards supervisors will use to determine if Airmen have satisfied training requirements. **Section B** contains the course objective list and the levels they are trained too in the Electronic Principles Course. **Section C** lists all of the training objectives for the PMEL apprentice course. **Section D** identifies the applicable support materials. **Section E** identifies a training course index that supervisors can use to determine if resources are available to support training. Included here are both mandatory and optional courses. **Section F** identifies MAJCOM unique training requirements supervisors can use to determine additional training required for the associated qualification needs. At unit level, supervisors and trainers will use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.

ABBREVIATIONS/TERMS EXPLAINED

Advanced Training (AT). Formal course, which provides individuals who are qualified in their Air Force Specialty (AFS) with additional skills/knowledge to enhance their expertise in the career field. Training is for selected career Airmen at the advanced level of an AFS.

Air Force Job Qualification Standard (AFJQS). A comprehensive task list that describes a particular job type or duty position. Supervisors use the AFJQS to document task qualifications. The tasks of AFJQS are common to all persons serving in the described duty position.

Bridge Course. A formal or informal course, which allows the individual to expand their knowledge in another area of expertise.

Career Field Education and Training Plan (CFETP). A CFETP is a comprehensive, multipurpose document covering the entire spectrum of education and training for a career field. It outlines a logical growth plan that includes training resources and is designed to make career field training identifiable, to eliminate duplication, and to ensure this training is budget defensible.

Certification. A formal indication of an individual's ability to perform a task to required standards.

Certification Official. A person authorized by appropriate commander to determine an individual's ability to perform a task to required standards.

Continuation Training. This is additional training that exceeds minimum upgrade requirements and has an emphasis on present or future duty assignments.

Core Task. Tasks that the Air Force Career Field Manager (AFCFM) identifies as minimum qualification requirements within an Air Force Specialty. Only a percentage of critical tasks for each system are listed as mandatory core tasks. This gives units needed flexibility to manage their workforce training. Core tasks identified with */R are optional for ANG and AFRC.

Course Objective List (COL). A publication identifying the tasks and knowledge requirements, and respective standards provided to achieve a 3-, -5-, and 7-level in this career field. Supervisors use the COL to assist in conducting graduate evaluations in accordance with AFI 36-2201, *Developing, Managing and Conducting Military Training Programs.*

Course Training Standard (CTS). A formal course document that identifies in board terms the training members will receive in a specific course.

Enlisted Specialty Training (EST). A mix of formal training (technical school) and informal training (on-the-job) to qualify and upgrade Airmen in each skill level of a specialty.

Exportable Training. Additional training via computer assisted, paper text, interactive video, or other necessary means to supplement training.

Go/No Go Level. In OJT, the stage at which an individual has gained enough skill, knowledge and experience to either be qualified to perform an identified task without assistance, or not.

Field Technical Training (Type 4). Special or regular on-site training conducted by a training detachment (TD) or by a mobile training team (MTT).

Initial Skills Training. A formal school course that results in the award of a 3-skill level AFSC.

Instructional System Development (ISD). A deliberate and orderly process for developing, validating, and reviewing instructional programs that ensures personnel are taught the knowledge and skills essential for successful job performance.

Maintenance Information System (MIS). Systems and applications that support and enable maintenance business processes. Used to document maintenance actions. Provides maintenance supervisors with products to evaluate organizational effectiveness and to aid in decision-making processes at all levels.

Maintenance Supply Liaison (MSL). Monitors overall maintenance and supply interface, resolves supply support problems, and coordinates supply-related training needs.

Master Task Listing (MTL). Document maintained within the workcenter that identifies all tasks performed in a workcenter. This includes core, critical position qualification and wartime tasks. This document can be automated.

Master Training Plan (MTP). A comprehensive workcenter training plan that may include MTLs QTPs, AFJQS, CFETP, task breakdowns, commercial publications and any other document that supports training.

Mobile Training Team (MTT). Instructors, trainers, training aids and operational equipment that formal schools send to bases or operating locations used to perform formal training.

Occupational Survey Report (OSR). A detailed report showing the results of an occupational survey of tasks performed within a particular AFS.

On-the-Job Training (OJT). Hands-on, over-the-shoulder training at the duty location used to certify personnel for both skill level upgrade and duty position qualification.

Position Qualification Training. Training designed to qualify an Airman in a specific position and is accomplished after upgrade training.

Proficiency Training. Additional training either in residence or exportable advanced training courses, or on-the-job training, provided to personnel to increase their skills and knowledge beyond the minimum required for upgrade.

Qualification Training (QT). Actual hands-on task performance training designed to qualify an Airman in a specific duty position. This training program occurs both during and after the upgrade training process. It is designed to provide the performance skill/knowledge training required to do the job.

Qualification Training Package (QTP). An instructional course designed for use at the unit to qualify or aid qualification in a duty position or program or on a piece of equipment. It may be printed, computer based, or in other audiovisual media.

Resource Constraints. Resource deficiencies, such as money, facilities, time, manpower, or equipment that preclude desired training from being accomplished.

Specialty Training Standard (STS). An Air Force publication that describes an Air Force Specialty in terms of tasks and knowledge an Airman may be expected to perform or to know on the job. It serves as a contract between AETC and the functional user to show which of the overall training requirements for an AFSC are taught in formal schools, Career Development Courses, and exportable courses.

Standard. An exact value, a physical entity, or abstract concept, established and defined by authority, custom, or common consent, to serve as a reference, model, or rule in measuring quantities or qualities. Standards are used to establish practices or procedures and to evaluate results.

Supplemental Training. Formal, standardized training within an AFS that is in addition to required initial skills training and skill level upgrade training. It may support new/newly assigned equipment, methods, and/or technology.

Task Certifier. See Certification Official

Training Business Area (TBA) – is a Net-Centric, GCSS-AF IF Web-Based application providing Air Force Warfighters with global, real-time visibility into the technical qualifications, certifications and training status of logistics, communications and information professionals Air Force wide. TBA supports base, wing and work center level training management activities by automating training management business processes. The primary users of TBA will be any personnel directly involved in base level training management and certification activities. TBA is being developed and maintained by 754th Electronic Systems Group, Installation and Logistics, Maintenance Flight (754 ELSG/ILM) at Maxwell-Gunter AFB.

Training Detachment (TD). An AETC detachment that provides maintenance oriented technical training, at an operational location, on specific systems and their aerospace ground equipment. A TD aims to qualify personnel on new equipment or in new techniques and procedures, maintain proficiency and increase skill and knowledge, acquaint personnel with specific systems, and keep personnel aware of changing concepts and requirements.

Training Setting. The type of forum in which training is provided (formal resident school, on-the-job, field training, mobile training team, self-study, etc.).

Upgrade Training (UGT). A mixture of mandatory courses, task qualification, QTPs, and CDCs required for award of the 3-, 5-, 7-, or 9-skill levels.

Utilization and Training Workshop (U&TW). A forum, co-chaired by the AF Career Field Manager and Training Pipeline Manager and AETC Training Pipeline Manager consisting of MAJCOM Air Force Specialty Code (AFSC) functional managers, Subject Matter Experts (SMEs), and AETC training personnel that determines career ladder training requirements.

SECTION A - GENERAL INFORMATION

1. Purpose. This CFETP provides information necessary for the Air Force Career Field Manager (AFCFM), MAJCOM functional managers (MFMs), commanders, training managers, supervisors and trainers to plan, develop, manage, and conduct an effective career field training program. This plan outlines the training that individuals in AFSC 2P0X1 should receive in order to develop and progress throughout their career. This plan identifies initial skills, upgrade, qualification, advanced, and proficiency training. Initial skills training is the AFS specific training an individual receives upon entry into the Air Force or upon retraining into this specialty for award of the 3-skill level. Normally, this training is conducted by AETC at one of the technical training centers. Upgrade training identifies the mandatory courses, task qualification requirements, and correspondence course completion requirements for award of the 3-, 5-, 7-, 9-skill levels. Qualification training is actual hands-on task performance training designed to qualify an Airman in a specific duty position. This training program occurs both during and after the upgrade training process. It is designed to provide the performance skills/knowledge required to do the job. Advanced training is formal specialty training used for selected Airmen. Proficiency training is additional training, either in-residence or exportable advanced training courses, or on-the-job training, provided to personnel to increase their skills and knowledge beyond the minimum required for upgrade. The CFETP has several purposes, some are:

1.1. Serves as a management tool to plan, manage, conduct, and evaluate a career field training program. Also, it is used to help supervisors identify training at the appropriate point in an individual's career.

1.2. Identifies task and knowledge training requirements for each skill level in the specialty and recommends education/training throughout each phase of an individual’s career.

1.3. Lists training courses available in the specialty, identifies sources of training, and the training delivery method.

1.4. Identifies major resource constraints that impact full implementation of the desired career field training process.

2. Uses. The plan will be used by the AFCFM, MFMs and supervisors at all levels to ensure comprehensive and cohesive training programs are available for each individual in the specialty.

2.1. AETC training personnel will develop/revise formal resident, non-resident, field and exportable training based on requirements established by the users and documented in Part II of the CFETP. They will also work with the AFCFM to develop acquisition strategies for obtaining resources needed to provide the identified training.

2.2. MFMs will ensure their training programs complement the CFETP mandatory initial, upgrade, and proficiency requirements. Identified requirements can be satisfied by OJT, resident training, contract training, or exportable courses. MAJCOM developed training to support this AFSC must be identified for inclusion into this plan.

2.3. Each individual will complete the mandatory training requirements specified in this plan. The lists of courses in Part II will be used as a reference to support training.

3. Coordination and Approval. The AFCFM is the approval authority. Also, the AFCFM will initiate an annual review of this document to ensure currency and accuracy. MAJCOM representatives and AETC training personnel will identify and coordinate on the career field training requirements. Using the list of courses in Part II, they will eliminate duplicate training. Applicable inputs/changes to this CFETP will be routed to AFMETCAL, 813 Irving-Wick Drive W. Bldg 2, Heath OH, 43056-1199.

SECTION B - CAREER PROGRESSION AND INFORMATION

1. Specialty Description.

1.1. Specialty Summary: Refer to the Air Force Enlisted Classification Directory.

1.2. Duties and Responsibilities.

1.2.1. Precision Measurement Equipment Laboratory Apprentice and Journeyman: Inspects, aligns, troubleshoots, and repairs PMEL standards, common and weapon system peculiar test, measurement, and diagnostic equipment (TMDE). Inspects TMDE for preventive maintenance, cleanliness, and safety requirements. Performs equipment maintenance using theories of operation, block diagrams, schematics, logic trees, and software diagnostics. Isolates malfunctions to component level. Calibrates and certifies TMDE to technical data specifications ensuring traceability to Air Force Reference Standards. Records and reports maintenance data; prepares technical order improvement reports, special training requests, training quality reports, and modification proposals. Tracks equipment warranties. Provides training and manages technical order distributions. Handles, labels, and disposes of hazardous materials and waste according to environmental standards.

1.2.2. Precision Measurement Equipment Laboratory Craftsman: In addition to Journeyman duties and responsibilities, plans, organizes, and coordinates mission support requirements. Collects and analyzes maintenance data and performs trend analysis. Identifies mission essential TMDE and its impact on workload. Coordinates lateral support, command certification, or contract services. Evaluates procedures for storage, inventory, and inspection of property. Provides training and assistance to TMDE users. Maintains PMEL automated management systems (PAMS).

1.2.3. Precision Measurement Equipment Laboratory Superintendent: In addition to Craftsman duties and responsibilities, develops and evaluates workload plans, budget, and support agreements. Manages PMEL quality program (QP) and management system (MS). Submits reports to higher headquarters, maintains a safe working environment, and ensures laboratory certification.

2. Skill and Career Progression. Adequate training and timely progression from the apprentice to the superintendent skill level play an extremely important role in the Air Force's ability to accomplish its mission. It is essential that everyone involved in training do their part to plan, develop, manage, and conduct an effective training program. The guidance provided in this part of the CFETP will ensure individuals receive viable training at appropriate points in their careers. The following narrative and the AFSC 2P0X1 Career Development Flow Charts identify the career skill progression.

2.1. Apprentice (3-Level): Upon completion of initial skills training, trainees will work with trainers to enhance their knowledge and skills. They will utilize the Career Development Course (CDC) and Task Qualification Training to progress in their career field.

2.2. Journeyman (5-Level): Once upgraded to the 5-level, journeymen enter into continuation training to broaden their experience base. Five-levels may be assigned job positions such as quality assurance, task trainer and certifier, and various staff positions. Five-levels will complete supplemental courses, exportable courses, and MAJCOM specific training as required. Individuals will be eligible to attend the Airman Leadership School (ALS) as a SrA with 48 months time in service or when selected for promotion to SSgt. Individuals will use their CDCs and other study references to prepare for testing under the Weighted Airman Promotion System (WAPS). They should also consider continuing their education by working towards a Community College of the Air Force (CCAF) degree.

2.3. Craftsman (7-Level): Craftsmen can expect to fill various supervisory and management positions such as shift leader, element chief, and task certifier. They may also be assigned to work in staff positions. Seven-levels should take courses to obtain added knowledge on management of resources and personnel. Continued academic education through CCAF and higher degree programs is encouraged. When promoted to TSgt, individuals will attend the Noncommissioned Officer Academy.

2.4. Superintendent (9-Level): A 9-level can be expected to fill positions such as flight chief, production supervisor and various staff NCOIC jobs. Additional training in the areas of budget, manpower, resources, and personnel management should be pursued through continuing education. Senior Noncommissioned Officer Academy attendance is mandatory for promotion to SMSgt. Additional higher education and completion of courses outside their career AFSC are also recommended.

3. Training Decisions. The CFETP was developed using a building block approach (simple to complex) to encompass the entire spectrum of training requirements for the Precision Measurement Equipment Laboratory Career Field. The spectrum includes a strategy for when, where, and how to meet these training requirements. The strategy must be apparent and affordable to reduce duplication of training and eliminate a disjointed approach to training. The following training decisions were made at the career field U&TW held at Keesler AFB, 18 – 22 April 2011:

3.1. Initial Skills Training. A decision was made to revise the resident course. Major changes included the addition of the following training items: The use of the Air Force Calibration Viewer (AFCAV), Metric/English unit conversions, and Pressure conversions. Once the appropriate equipment is procured, the use and calibration of digitizing oscilloscopes will be added. The required level of training was changed on four objectives to better reflect the level of training required by the field at this skill level. There were no elements of training deleted during this U&TW.

3.2. Five-Level Upgrade Training Requirements. The 5-level CDC was revised to update equipment and procedures to reflect what is actually in use in the field. Additionally, a few tasks were realigned from the 7-level to 5-level CDCs to better agree with normal career field progression.

3.3. Seven-Level Upgrade Training Requirements. The 7-level CDC was updated to reflect changes in equipment and procedures taking place in the field. The Process Review will be also be added to the 7-level CDC.

3.4. Proficiency Training. Any additional knowledge and skill requirements not identified as initial skills or upgrade training were assigned to the Continuation Training Program. The purpose of continuation training is to provide additional training that exceeds minimum training requirements. The training program will identify both mandatory and optional training requirements. Emphasis is on present and future duty positions.

4. **Higher Education and Advanced Certification Opportunities.** Higher education and advanced certification is a personal choice that is encouraged for the professional development of the entire Enlisted Force. Listed below are some current opportunities:

4.1. Community College of the Air Force (CCAF) Academic Programs. Enrollment in CCAF occurs upon completion of basic military training (BMT). CCAF provides the opportunity to obtain an Associates in Applied Sciences Degree.

4.1.1. Degree Requirements: All Airmen are automatically entered into the CCAF program. Prior to completing an associate degree, the 5-level must be awarded and the following requirements must be met:

	Semester Hours
Technical Education	24
Leadership, Management, and Military Studies	6
Physical Education	4
General Education	15
Program Elective Technical Education; Leadership, Management, and Military Studies; or General Education	15
Total	64

4.1.2. Technical Education (24 Semester Hours): A minimum of 12 semester hours of Technical Core subjects and courses must be applied and the remaining semester hours applied from Technical Core or Technical Elective subjects and courses. Completion of the initial skills resident training at Keesler AFB satisfies all or part of the technical education requirement.

4.1.3. Leadership, Management, and Military Studies (6 Semester Hours): Professional military education and/or civilian management courses.

4.1.4. Physical Education (4 Semester Hours): This requirement is satisfied by completion of Basic Military Training.

4.1.5. General Education (15 Semester Hours): Applicable courses must meet the criteria for application of courses to the General Education Requirements (GER) and be in agreement with

the definitions of applicable General Education subjects/courses as provided in the *CCAF General Catalog.*

4.1.6. Program Elective (15 Semester Hours): Satisfied with applicable Technical Education; Leadership, Management, and Military Studies; or General Education subjects and courses, including natural science courses meeting GER application criteria. Six semester hours of CCAF degree-applicable technical credit otherwise not applicable to this program may be applied. See the *CCAF General Catalog* for details regarding the Associates of Applied Science for this specialty.

4.2. AETC Instructor. Individuals desiring to become an AETC Instructor should be actively pursuing an associate's degree. A degreed faculty is necessary for to maintain accreditation through the Southern Association of Colleges and Schools.

4.3. Occupational Instructor Certification. Upon completion of instructor qualification training, consisting of the instructor methods course and supervised practice teaching, CCAF instructors who possess an associate's degree or higher may be nominated by their school commander and commandant for certification as an occupational instructor.

4.4. Trade Skill Certification. When a CCAF student separates or retires, a trade skill certification is awarded for the primary occupational specialty. The College uses a competency based assessment process for trade skill certification at one of four proficiency levels: Apprentice, Journeyman, Craftsman/Supervisor, or Master Craftsman/Manager. All are transcribed on the CCAF transcript.

4.5. Instructor of Technology and Military Science (2IBB). This program applies to CCAF students with a "T" prefix to their AFSC which identifies them as instructors.

4.6. The Electronic Systems Technology (4VHP). This program applies to AFSC 2P0X1.

5. Career Field Path. The career path is shown in Table 5.1.

5.1. Enlisted Career Path. Table 5.1 identifies career milestones for the 2P0X1 Air Force Specialty.

Table 5.1. Enlisted Career Path

EDUCATION AND TRAINING REQUIREMENTS	GRADE REQUIREMENTS			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT)
BASIC MILITARY TRAINING SCHOOL				
APPRENTICE TECHNICAL SCHOOL (3-Skill Level)	Amn A1C	6 months 16 months		

Table 5.1. Enlisted Career Path				
EDUCATION AND TRAINING REQUIREMENTS	**GRADE REQUIREMENTS**			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT)
UPRADE TO JOURNEYMAN (5-Skill Level). - Minimum 12 months on-the-job training. - Complete all 5-level core tasks. - Complete appropriate CDC	Amn A1C SrA	6 months 16 months 3 years	28 months	8 Years
AIRMAN LEADERSHIP SCHOOL (ALS) - Must be a SrA with 48 months time in service or be a SSgt Selectee. - Resident graduation is a prerequisite for SSgt sew-on				
TRAINER - Qualified and certified to perform task to be trained. - Complete the Air Force Training Course (AFTC).	**CERTIFIER** - Be at least a 5-skill level SSgt or civilian equivalent; and qualified and certified to perform the task being certified. - Complete the AFTC. - Be a person other than the trainer.			
UPGRADE TO CRAFTSMAN (7-Skill Level) - Minimum rank of SSgt. - Complete all 5- and 7-level core tasks on one MDS - 12 months OJT. - Complete appropriate CDC	SSgt	7.5 years	3 years	15 Years
NONCOMMISSIONED OFFICER ACADEMY (NCOA) - Must be a TSgt or TSgt Selectee. - Resident graduation is a prerequisite for MSgt sew-on	TSgt MSgt	12.5 years 16 years	5 years 8 years	20 Years 24 years
USAF SENIOR NCO ACADEMY (SNCOA) - SMSgt or SMSgt Selectee. - A percentage of top non-select (for promotion to E-8) MSgt attend the SNCOA each year. - Resident graduation is a prerequisite for SMSgt sew-on	SMSgt	19.2 years	11 years	26 Years

Table 5.1. Enlisted Career Path				
EDUCATION AND TRAINING REQUIREMENTS	**GRADE REQUIREMENTS**			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT)
UPGRADE TO SUPERINTENDENT (9-Skill Level) - Minimum rank of SMSgt.	CMSgt	21.5 years	14 years	30 Years

5.2. Education and Training Manager Checklist

Table 5.2. Base/Unit Education and Training Manager Checklist		
Requirements for Upgrade to:	**Y**	**N**
Journeyman - Has apprentice completed mandatory CDCs? - Has apprentice completed all appropriate 5-level core tasks identified in the CFETP? - Has apprentice completed all other duty position tasks identified by the supervisor? - Has apprentice completed 12 months training (9 months for retrainees) for award of the 5-skill-level? - Has apprentice met mandatory requirements listed in specialty description, AF Enlisted Classification Directory (AFECD), and CFETP? - Has apprentice been recommended by their supervisor?		
Craftsman - Has journeyman achieved the rank of SSgt? - Has journeyman completed mandatory CDCs? - Has journeyman completed all core tasks identified in the CFETP? - Has journeyman completed all other duty position tasks identified by the supervisor? - Has journeyman completed a minimum 12 months (6 months for retrainees) UGT for award of the 7-skill level.		

TO: Squadron/CC

FROM: Squadron Training Manager

SUBJECT: Upgrade _____ (Trainee name)

Trainee is prepared to be upgraded and has completed all training requirements.

_____ _____

Training Manager Supervisor

SECTION C - SKILL LEVEL TRAINING REQUIREMENTS

1. Purpose. Skill level training requirements in this specialty are defined in terms of tasks and knowledge requirements. This section outlines the specialty qualification requirements for each skill level in broad, general terms and establishes the mandatory requirements for entry, award, and retention of each skill level. The specific task and knowledge training requirements are identified in the STS at Part II, Section A and B of this CFETP.

2. Specialty Qualification.

2.1. Apprentice Level Training.

2.1.1. Specialty Qualification.

2.1.1.1. Knowledge. Knowledge is mandatory of: electrical, mechanical, physics, optics, and thermal principles; mathematics, and number systems; operating principles, use, care, and repair of TMDE and laboratory standards; analysis and interpretation of technical data, including block, schematic, wiring, and logic diagrams; troubleshooting techniques; metrology program, calibration traceability, metrology techniques, laboratory practices, software, and computer operations principles; use of hand tools; procedures for training, supply, maintenance data collection, QP, command certification, equipment scheduling, production, and materiel control; facility requirements; and support equipment management.

2.1.1.2. Education. Completion of high school or general education development equivalency is mandatory for entry into this specialty. Also, courses in electronics, physics, trigonometry, and algebra, and technical or vocational training in electronics or instrumentation is desirable.

2.1.1.3. Training. For award of AFSC 2P031, completion of a basic precision measurement equipment laboratory course is mandatory.

2.1.1.4. Experience. None.

2.1.1.5. Other. For entry into this specialty, normal color vision as defined in AFMAN 48-123 is mandatory.

2.1.2. Training Sources/Resources. The initial skills course will provide the required knowledge and qualifications. Initial skills training encompasses electronic principles, equipment theory and operation, system components, component removal and installation, introduction to metrology concepts, use of technical publications, maintenance documentation, and support equipment familiarization and use.

2.1.3. Implementation. Upon graduation from Basic Military Training, Airmen are assigned to a training center for completion of course E3AQR2P031 048B, Electronics Principles, and course E3ABR2P031 0B1A, Precision Measurement Equipment Laboratory Apprentice. Completion of both courses will result in award of the 3-level.

2.2. Journeyman Level Training.

2.2.1. Specialty Qualification.

2.2.1.1. Knowledge. In addition to the 3-level qualifications, an individual must possess knowledge of electrical, electronics, electromechanical, mechanical, physics, optics, and thermal principles; mathematics, and binary systems; operating principles of TMDE and laboratory working standards; analysis of block, schematic, wiring, and logic diagrams, and technical data; troubleshooting techniques; calibration traceability, metrology techniques, and laboratory practices; microprocessors; computer operational principles, language, and software; and aerospace systems principles.

2.2.1.2. Education. Same as required for entry into AFSC 2P031.

2.2.1.3. Training. Same as required for entry into AFSC 2P031.

2.2.1.4. Experience. Qualification in and possession of AFSC 2P031. Also, experience in functions such as maintaining, modifying, aligning, calibrating, or certifying TMDE and laboratory standards, or preparing inputs to TMDE logistics support systems.

2.2.1.5. Other. Same as required for entry into AFSC 2P031.

2.2.2. Training Sources/Resources. The 5-level CDC provides the career knowledge training required. Qualification training and OJT will provide training and qualification on core tasks identified in the STS or AFJQS. The CDC is written to build from the trainee's knowledge base and provides more in-depth knowledge supporting OJT requirements.

2.3.3. Supervisor/Training Manager Input. Utilize Table 5.2 **Base/Unit Education and Training Checklist** as applicable to facilitate upgrade actions.

2.2.4. Implementation. Training to the 5-level is performed by the units, utilizing the STS or AFJQS, the CDC, and OJT. Upgrade to the 5-level requires completion of the 2P051 Precision Measurement Equipment Laboratory Journeyman CDC, 12 months OJT, and completion of all core tasks.

2.3. Craftsman Level Training.

2.3.1. Specialty Qualification.

2.3.1.1. Knowledge. In addition to the 5-level qualifications, an individual must possess knowledge of advanced electrical, electronics, electromechanical, mechanical, physics, optics and thermal principles; operating principles of complex and intricate TMDE and laboratory standards; interpretation of block, schematic, wiring, and logic diagrams, and technical data; advanced troubleshooting techniques; planning, and quality assurance.

2.3.1.2. Education. Same as required for entry into AFSC 2P031.

2.3.1.3. Training. Same as required for entry into AFSC 2P031.

2.3.1.4. Experience. Qualification in and possession of AFSC 2P051. Also, experience in laboratory supervision, planning, maintaining, modifying, and certifying complex and intricate TMDE and laboratory standards, and preparing inputs to TMDE logistics support systems.

2.3.1.5. Other. Same as required for entry into AFSC 2P031.

2.3.2. Training Sources/Resources. Seven-level upgrade training will be conducted by certified trainers using AF core tasks, unit/MAJCOM specific courses.

2.3.3. Implementation. Upgrade to the 7-level will require completion of all AF core tasks, 7-level CDCs, and 12 months OJT as a SSgt selectee/SSgt

2.4. Superintendent Level Training.

2.4.1. Specialty Qualification.

2.4.1.1. Knowledge. In addition to 7-level qualifications, an individual must possess knowledge of concepts and principles in Air and Space Expeditionary Force support planning and procedures for training, manpower, personnel, supply, civil engineering, budget, maintenance data collection, integrated logistics feedback systems, and quality assurance. Knowledge of quality Air Force principles, command certification, support agreements, reimbursement procedures, equipment scheduling, production and materiel control, facility requirements, and metrology functions and procedures. They must also be knowledgeable of all environmental standards and ensure adherence to the proper handling and disposal of hazardous materials and waste.

2.4.1.2. Education. Same as required for entry into AFSC 2P031.

2.4.1.3. Training. Same as required for entry into AFSC 2P031.

2.4.1.4. Experience. Qualification in and possession of AFSC 2P071. Also, experience in managing or coordinating training programs and requirements; planning supply, facility, and budget requirements; quality control and assurances programs; integrated logistics support planning; feed back into Air Force Materiel Command logistics systems to resolve problems; interservice and interdepartmental support agreements; reimbursement procedures; and Directorate of Metrology interaction.

2.4.1.5. Other. Same as required for entry into AFSC 2P031.

2.4.2. Training Sources/Resources. Same as required for entry into AFSC 2P031.

2.4.3. Supervisor/Training Manager Input. Utilize Table 5.2 **Base/Unit Education and Training Checklist** as applicable to facilitate upgrade actions.

2.4.4. Implementation. The 9-level will be awarded after promotion to SMSgt.
The 9-level will be awarded after completing MAJCOM requirements, unit OJT, and promotion to SMSgt. Resident graduation of the Senior NCO Academy is a prerequisite for SMSgt sew-on.

SECTION D - RESOURCE CONSTRAINTS

1. Purpose. This section identifies known resource constraints, which preclude optimal/desired training from being developed or conducted, including information such as cost and manpower. Narrative explanations of each resource constraint and an impact statement describing what effect each constraint has on training are included. Also included in this section are actions required, office of primary responsibility, and target completion dates. Resource constraints will be, as a minimum, reviewed and updated annually.

2. Apprentice-Level Training.

2.1. Constraints. There are no constraints in starting the new E3ABR2P031 0B1C apprentice course. New equipment will be added to the course upon receipt.

3. Five-Level Training.

3.1. Constraints. New training requirements listed in CTS E3AZR2P051-0A1D will be implemented 120 days after receipt of new equipment. Resource constraints for course E3AZR2P051-0A1D supplemental course are: Digital Voltmeter (8508A), Sampling Oscilloscope (86100C) and NIDA Trainers.

New training requirements listed in CTS E8AZR2P051-0P1C and CTS E8AZR2P051-1P1C will be implemented 120 days after receipt of new equipment. Resource constraints for courses E8AZR2P051-0P1C and E8AZR2P051-1P1C are: Air Data Calibrator (ADC-2500), Flight Control System Test Set (TTU-205J), 400Hz Power Supply (T3FC-11-1K), Low Pressure Secondary Standard (PPC3), Multi-Gas Monitor (PGM 50), Platform Scale (AC1-25LP), Temperature/Humidity Display w/probe (1620/2626), Lab EMS/Log Ware (9936A), Optics kits (A-8003-0441 and 0442), Right Angle Iron (9194), Dial Indicator (E3BS), Bore sight Calibration Fixtures (16A75062-119 and 16A75029-169) and Right Angle Granite Block (81554).
New training requirements listed in CTS E3AZR2P051 0T1C will be implemented 120 days after receipt of new equipment. Additionally, this start date needs to coincide with the start date of E3AZR2P051-0A1D due to instructor pricing. Resource constraints for course E3AZR2P051-0T1C are: Navigation Test Sets (AN/ARM-188 and 184), Time Interval Test Set (TS-3427/ARM), RF Power Divider (11667A) and Variable Attenuator (8494B).

4. Seven-Level Training.

4.1. Constraints. None

***SECTION E – TRANSITIONAL TRAINING GUIDE*- There are no transitional requirements, this area is reserved.**

PART II

Section A - SPECIALTY TRAINING STANDARD

1. Implementation. This Specialty Training Standard (STS) will be used for training provided by Air Education and Training Command for classes beginning 120531 and graduating 121002.

2. Purpose. As prescribed in AFI 36-2201 this STS:

2.1. Lists in column 1, the tasks, knowledge, and technical references (TR) necessary for Airmen to perform in the 3-, 5-, and 7-skill level. These are based on an analysis of the duties in AFECD. All 3-Level training items are wartime course objectives.

2.2. Provides certification for OJT. Column 3 is used to record completion of tasks and knowledge training requirements. Use automated training management systems to document technician qualifications, if available. Task certification must show a certification or completed date. (As a minimum, use the following column designators: Training Complete, Certifier Initials.) When two codes are used in column 4a, the first code is the established requirement for resident training on the task/knowledge, and the second code indicates the level of training provided in the course due to equipment shortages and other resource constraints.

2.3. Shows formal training and correspondence course requirements. Column 4 shows the proficiency to be demonstrated on the job by the graduate as a result of training on the task and knowledge and the career knowledge provided by the correspondence course.

2.4. Qualitative Requirements**. Attachment 1** contains the proficiency code key used to indicate the level of training and knowledge provided by resident training and career development courses.

2.5. Use to document task when placed in AF Form 623, **Individual Training Record**, and used according to AFI 36-2201.

2.6. Provides in column 3, OJT certification columns to record completion of task and knowledge training requirements. Certification is accomplished IAW AFI 36-2201 and the procedures outlined below.

2.7. Is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Specialty Knowledge Tests (SKTs) are developed at the USAF Occupational Measurement Squadron by senior NCOs with extensive practical experience in their career fields. The test samples knowledge of STS subject matter areas judged by test development team members to be the most appropriate for promotion. Questions are based on the WAPS study references listed in the WAPS catalog published by AFOMS/CC. Individual responsibilities are outlined in AFI 36-2605.

2.8. Becomes a Job Qualification Standard (JQS) for OJT when placed in the AF Form 623, Individual Training Record, and used according to AFI 36-2201. For OJT, the tasks in column 1

are trained and qualified at the go/no go level. "Go" means the individual can perform the task without assistance and meets local requirements for accuracy, timeliness, and correct use of procedures.

2.9. Provides Upgrade Certification Procedures: Prior to upgrade, all 2P0X1 personnel, regardless of duty position, must satisfactorily complete all upgrade training requirements. Trainees must also meet AFSC requirements outlined in AFI 36-2101 and AFECD, and be task certified on upgrade core tasks. All 7-level trainees must be certified on both 5-level and 7-level appropriate core tasks for upgrade. Due to different equipment at each unit, selected Air Force core tasks on items which are not available at a specific location are not required for upgrade. Work centers may add local upgrade critical tasks and non-mandatory tasks to the AFJQS. Completion of non-mandatory tasks, pertinent to the unit, will continue to be accomplished as tasks become available for training.

3. Records Documentation. Document and certify completion of training IAW AFI 36-2201. Entries will be as follows:

3.1. Identification. Enter trainee's identification data, supervisors/trainers, and certifying official on the AFJQS identification page.

3.2. Certification. Certify tasks (in pencil) as follows:

3.2.1. Certify those tasks that are listed in the STS.

3.2.2. Circle current duty position task numbers. If in upgrade training, these tasks include core tasks associated with the current duty position. Note: Training on all core tasks is still required for upgrade unless otherwise stated by the AFCFM. Erase all other circled tasks not applicable to the current duty position.

3.2.3. As task training starts, enter the training start date in column 3a.

3.2.4. When the trainee and trainer agree to task proficiency, the trainer will initial column 3d and the trainee will initial column 3c. For task certification, the certifying official will evaluate the trainee for proficiency.

3.2.5. Selected STS tasks are listed in a dual action format like Remove/Install. Training and time constraints can prevent consecutive task training or certification on both removal and installation. In this situation, divide the trainee, trainer or certifier, and completion date columns with a diagonal (/) to accommodate dual entries. The trainer and trainee will enter an "R" for removal or "I" for installation, and their initials adjacent to either side of the (/) in their respective columns. If separate certifications are required, divide column 3b and, enter "R" or "I", initials, and completion date.

3.3. Decertification. To decertify an individual who is no longer proficient at a required task, erase all entries associated with the task. A statement will be annotated on the AF Form 623A to reflect the reason for decertification.

3.4. Recertification. Once retraining is started, enter the new training start date. After completing the task to a "go" level, recertify following procedures in paragraph 3.2.4.

3.5. Transcribing to new CFETP.

3.5.1. Use the new CFETP to identify current training requirements and transcribe qualifications from the previous CFETP.

3.5.2. For tasks previously certified and required in the current duty position, circle the subparagraph number next to the task statement and enter the current date in the completion column. Trainee initials in the trainee column and the current task certifier or supervisor/trainer initials in the trainer column."

3.5.3. For tasks previously certified but not required in the current duty position (do not circle), transcribe only the previous certification date (no initials).

3.5.4. Annotate the AF Form 623a, (for example, "I certify the information contained in the CFETP dated XXX was transcribed to the CFETP dated XXX, and the trainee was given the superseded CFETP." Signed, dated, supervisor and trainee).

4. Proficiency Code Keys. Attachment 1 contains the proficiency code key used to indicate level of training and knowledge provided by resident training and CDCs.

5. Recommendations. Comments and recommendations are invited concerning the quality of AETC Training. A Customer Service Information line (CSIL) has been installed for the supervisors' convenience. For a quick response to concerns call our CSIL at DSN 597-4566, or fax us at DSN 597-3790 or e-mail us at 81trg-tget@keesler.af.mil. Reference this CFETP/STS and identify the specific area of concern (paragraph, training standard element, etc.)

BY THE ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

JUDITH A. FEDDER
Lieutenant General, USAF
DCS/Logistics, Installations & Mission Support

7 Attachments
1. Qualitative Requirements
2. Training Requirements, Common
3. Training Requirements, Electronic Principles
4. Course Objective List
5. Support Materials
6. Training Course Index
7. MAJCOM Unique Requirements

THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY		
NAME OF TRAINEE		
PRINTED NAME (*Last, First, Middle Initial*)	INITIALS *(Written)*	SSAN

PRINTED NAME OF TRAINING/CERTIFYING OFFICIAL AND WRITTEN INITIALS	
N/I	***N/I***
N/I	***N/I***
N/I	***N/I***
N/I	***N/I***
N/I	***N/I***
N/I	***N/I***
N/I	***N/I***
N/I	***N/I***
N/I	***N/I***
N/I	***N/I***

QUALITATIVE REQUIREMENTS

PROFICIENCY CODE KEY		
	SCALE VALUE	**DEFINITION: The individual**
TASK PERFORMANCE LEVELS	1	**IS EXTREMELY LIMITED.** (Can do simple parts of the task. Needs to be told or shown how to do most of the task.)
	2	**IS PARTIALLY PROFICIENT.** (Can do most parts of the task. Needs only help on hardest parts.)
	3	**IS COMPETENT.** (Can do all parts of the task. Needs only a spot check of completed work.)
	4	**IS HIGHLY PROFICIENT.** (Can do the complete task quickly and accurately. Can tell or show others how to do the task.)
*TASK KNOWLEDGE LEVELS	a	**KNOWS NOMENCLATURE.** (Can name parts, tools, and simple facts about the task.)
	b	**KNOWS PROCEDURES.** (Can determine step by step procedures for doing the task.)
	c	**KNOWS OPERATING PRINCIPLES.** (Can identify why and when the task must be done and why each step is needed.)
	d	**KNOWS ADVANCED THEORY.** (Can predict, isolate, and resolve problems about the task.)
**SUBJECT KNOWLEDGE LEVELS	A	**KNOWS FACTS.** (Can identify basic facts and terms about the subject.)
	B	**KNOWS PRINCIPLES.** (Can identify relationship of basic facts and state general principles about the subject.)
	C	**KNOWS ANALYSIS.** (Can analyze facts and principles and draw conclusions about the subject.)
	D	**KNOWS EVALUATION.** (Can evaluate conditions and make proper decisions about the subject.)

EXPLANATIONS

* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Example: b and 1b)

** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks.

\- This mark is used alone instead of a scale value to show that no proficiency training is provided in the course or CDC.

X This mark is used alone in course columns to show that training is required but not given due to limitations in resources.

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
NOTE 1: Training references (TRs) listed are representative of test, measurement, and diagnostic equipment (TMDE) and applicable standards. Users annotate TRs to identify local TMDE availability for upgrade and qualification training.										
NOTE 2: Attachment 2 of the CFETP is used to code core competencies of the career field that are taught in the 3-level course.										
NOTE 3: All 3-skill level course requirements are trained in the 3-level resident wartime course.										
NOTE 4: Underlined TRs are suggested commercial publications or other service publications that may be used for Specialty Training (ST) and mission accomplishment. Users are responsible for annotating training references to identify current references pending STS revision.										
NOTE 5: Repair is not accomplished in the resident course. Code levels for troubleshoot/repair in course column 4A(1) and/or 4C(1) refer to any one or a combination of theoretical or "hands on" troubleshoot or circuit analysis.										
NOTE 6: Attachment 3 of the CFETP is used to document training taught in the Electronics Principles Course Prerequisite to PMEL 3-level.										
NOTE 7: Address comments and recommended changes through the MAJCOM Functional Managers to the AETC Training Pipeline Manager, .A3TM										
NOTE 8: Section 13 of this STS is used to identify training proficiencies taught in the 3-lvl course and 5 & 7-lvl CDC only. Section 13 is not intended for field use.										
1 CAREER LADDER PROGRESSION TR: AFECD, AFI 36-2618										
1.1 Progression in career ladder 2P0X1								-	A	-
1.2 Duties of AFSCs 2P031/51/71								-	A	-
2 SECURITY TR: AFI , 31-401										
2.1 Specific OPSEC vulnerabilities of AFSC 2P0X1								A	B	-
2.2 Physical Security TR: AFPD 31-1								-	A	-
3 AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM (Hazards of AFSC 2P0X1) TR: AFI 91-301; AFOSH Std 91-90; TO 31-1-141-1-CD-1, TOs 00-25-232, 00-25-234										
3.1 Hazards of AFSC 2P0X1 TR: AFOSH Std 91-90								A	A	-
3.2 RISK MANAGEMENT								A	A	A
4 HAZARDOUS MATERIALS AND WASTE HANDLING ACCORDING TO ENVIRONMENTAL STANDARDS TR: AFI 32-7042; AFPAM 32-7043; AFOSH Std 91-90										
4.1 Types of hazardous materials/fluids								A	B	-
4.2 Handling procedures								A	B	-
4.3 Storage and labeling								A	B	-
4.4 Proper disposal								-	B	-
4.5 Hazardous spills cleanup								-	B	-
5 PUBLICATIONS AND FORMS										
5.1 Maintain										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
5.1.1 Automated Technical Order (TO) Management System (ATOMS) accounts TR: TO 00-5-1								-	-	-
5.1.2 TO Libraries TR: TO 00-5-1								-	-	-
5.1.3 Time Compliance Technical Orders (TCTOs) TR: TO 00-5-15-WA-1								-	-	-
5.2 Use indexes to locate publication numbers and titles TR: TO 00-5-1	*							2b	-	-
5.3 Use technical information to maintain TMDE TR: Applicable TMDE TOs; Commercial Publications	*							2b	b	-
5.4 Research supply data (supply catalogs, federal logistics (FEDLOG), or WEBFLIS/stock control documents). TR: Applicable Supply Publications; MIL-SPECs; Applicable TOs; D.A.T.A. Series	*							2b	-	-
5.5 Draft TO improvement reports (AFTO Form 22) TR: TO 00-5-1								b	b	-
5.6 Use calibration and correction charts TR: TO 00-20-14	*							b	-	-
5.7 Complete TMDE documentation forms TR: TO 00-20-14	*							2b	-	-
5.8 Complete AF Form 2005 TR: AFMAN 23-110 Vol II Part 13								b	-	-
5.9 Draft Deficiency Reports TR: TO 00-35D-54-WA-1								-	-	a
5.10 Complete Equipment Condition Forms and Tags TR: TO 00-20 Series	*							b	-	-
5.11 Use 33K-1-100-1/2, AFCAV	*							2b	-	-
6 SUPERVISION										
6.1 Write Report of Survey TR: AFMAN 23-220; DODD 7200.10								-	-	-
6.2 Conduct initial evaluations for newly assigned personnel TR: AFI 36-2201								-	-	-
6.3 Initiate extension requests for TMDE calibrations TR: TO 00-20-14								-	-	-
6.4 Schedule TR: AFI 21-101, other applicable directives										
6.4.1 Work assignments								-	-	-
6.4.2 Work priorities								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
6.4.3	Other activities (ancillary training, staff meetings and leave time)								-	-	-
6.5	Assign TR: AFI 21-101										
6.5.1	Maintenance and repair work								-	-	-
6.5.2	Personnel to positions								-	-	-
6.6	Unit Manning Document, Unit Personnel Management Rosters, and Air Force Manpower Standards TR: AFI 38-201; AFMS 23I1; AFPAM 38-208								-	-	B
6.7	USAF Graduate Evaluation Program TR: AFI 36-2201								-	B	-
6.8	Maintenance Complex Organization TR: AFI 21-101								-	-	A
7	**TRAINING** TR: AFI 36-2201										
7.1	Evaluate EST requirements								-	-	-
7.2	Supervise EST										
7.2.1	Document training								-	-	-
7.2.2	Schedule training								-	-	-
7.3	OJT trainer responsibilities										
7.3.1	Prepare training plans and teaching outlines								-	-	-
7.3.2	Conduct training								-	-	a
7.4	OJT task certifier responsibilities										
7.4.1	Develop training evaluation program								-	-	-
7.4.2	Evaluate trainee's attainment of training objectives								-	-	-
7.4.3	Provide feedback to supervisor and trainer on evaluation results								-	-	-
8	**QUALITY PROGRAM** TR: AFI 21-101; TO 00-20-14										
8.1	Evaluate										
8.1.1	TO improvement reports								-	-	-
8.1.2	Draft calibration procedures								-	-	-
8.1.3	Calibration responsibility determination reports								-	-	-
8.2	Conduct										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
8.2.1	QP briefings for newly assigned personnel								-	-	-
8.2.2	On-site PMEL or QP inspection visits								-	-	-
8.2.3	Quality reviews								-	-	a
8.2.4	Root cause analysis								-	-	a
8.2.5	Trend analysis								-	-	a
8.2.6	Process Reviews								-	-	a
8.3	Coordinate deficiency reports with appropriate agencies								-	-	-
8.4	Compile QP data for monthly records, reports, and logs								-	-	-
8.5	Maintain environmental charts and logs								-	-	-
9	**PRODUCTION CONTROL** TR: AFI 21-101; TOs 00-20-14, 33-1-27, AFCSM 21-303V2										
9.1	Perform acceptance or receiving inspections of incoming TMDE, including validating part number, documentation and condition								-	-	-
9.2	Schedule equipment into and out of the laboratory TR: AFCSM 21-303V2		*						2b	-	-
9.3	Maintain Equipment Schedules TR: AFCSM 21-303V2								-	-	-
9.4	Maintain (Master TMDE Database)		*						-	-	-
9.5	Conduct TMDE coordinator training								-	-	-
10	**SUPPLY AND EQUIPMENT** TR: AFI 64-117; AFMAN 23-110										
10.1	Certify status of reparable, serviceable, or condemned parts for TMDE								-	-	-
10.2	Coordinate										
10.2.1	Government card purchases								-	-	-
10.2.2	Requisition of equipment								-	-	-
10.2.3	Technical assistance requirements with AFMETCAL, manufacturers, or other PMELs								-	-	-
10.2.4	Turn-in of excess or surplus property with base or other agencies								-	-	-
10.2.5	Supply transactions								-	-	a
10.2.6	Outside agency support TR: AFI 25-201								-	-	-
10.3	Maintain										

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
10.3.1	Equipment Liaison Office (ELO) accounts								-	-	a
10.3.2	Organizational equipment/supply records								-	-	-
10.3.3	Equipment support plans TR: TO 00-20-14								-	-	a
10.4	Prepare transportable field calibration units (TFCUs)								-	-	-
10.5	Validate										
10.5.1	Due-In From Maintenance (DIFM) transactions TR: TO 00-20-3								-	-	-
10.5.2	Supply transaction listings								-	-	-
10.5.3	Mission capability (MICAP) conditions TR: AFMAN 23-110, Volume 2, (Part 2, Chapter 11)								-	-	a
10.5.4	SMR codes TR: TO 00-25-195	*							-	a	-
11	**MANAGEMENT**										
11.1	Maintenance Data Collection System Function TR: AFCSM 21-303V2; TOs 00-20-2, 33K-1-100-1/-2								A	-	-
11.2	PMEL Automated Management System (PAMS) TR: AFI 21-113; AFCSM 21-303V2; TOs 00-20-14, 33-1-27, 33K-1-100-1/-2										
11.2.1	Use	*							2b	-	-
11.2.2	Print reports								-	-	-
11.2.3	Management systems								-	-	-
11.3	Environmental conditions (LabEMS) TR: TO 00-20-14								-	-	B
11.4	Laboratory certification program TR: TO 00-20-14/AFI 21-113								-	-	B
11.5	TMDE support agreements TR: AFI 25-201; DFAS-DER177-102; TO 00-20-14								-	-	B
11.6	Budget TR: AFI 65-601V1								-	-	A
11.7	Administer Management System TR: TO 00-20-14								-	-	-
11.8	DIFM/Depot Level Repairables (DLR) TR: AFMAN 23-110; TO 00-20-3								-	A	-
11.9	Fraud Waste and Abuse/Zero Overpricing TR: AFI 90-301; AFMAN 23-110V7PT4								-	-	-
11.10	PMEL Facility Design Requirements TR: AFMAN 32-1094; TO 00-20-14								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
11.11 Reimbursements TR: AFIs 25-201, 65-601 V1								-	-	a
11.12 Preventive Maintenance Inspections TR: TO 00-20-1								-	-	-
11.13 Compliance and Standardization Inspections TR: AFI-90-201								-	-	A
11.14 Mobility Program TR: AFI 10-401, AFI 10-403								-	-	B
12 LABORATORY PRACTICES										
12.1 Policies and Procedures TR: AFI 21-113; TO 00-20-14								A	B	-
12.2 Electrostatic Discharge Sensitive Devices (ESD) TR: TO 00-25-234								A	-	-
12.3 Surface Mount Technology (SMT) TR: TO 00-25-234								A	-	-
12.4 Cable and Connectors TR: TOs 31-10-14, 33A1-13-579-1								A	-	-
12.5 Tools TR: TOs 32-1-2, 32-1-101, 32-1-151, 32-1-201								A	-	-
12.6 Bench Stock TR: AFMAN 23-110 Vol II part 13								A	-	-
12.7 Substitution of TMDE standards TR: TOs 00-20-14, 33K-1-100-1/-2	*							B	B	-
13 JOB RELATED FUNDAMENTALS TR: TOs 31-1-141 Series, 33A6-4-15-1; Applicable Commercial Manuals										
13.1 Perform Mathematical Calculations and Conversions										
13.1.1 Power Ratios, Decibels, and dBms								B	B	-
13.1.2 Head Pressure								-	B	-
13.1.3 Trigonometric applications								-	B	-
13.1.4 Absolute, gage, and differential pressures								-	B	-
13.1.5 Percents of modulations								B	-	-
13.1.6 Specific gravity of fluids, solids, and gases								-	B	-
13.1.7 Volume, mass, and area								-	B	-
13.1.8 Degrees, minutes, and seconds conversions								-	B	-
13.1.9 Mass conversions								-	B	-
13.1.10 Metric/English unit conversions								B	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
13.1.11 Pressure conversions								B	B	-
13.1.12 Thermocouple millivolt to temperature conversions								B	B	-
13.1.13 Error, correction, and correction factors								B	B	-
13.1.14 Gross, systematic, and random errors								B	B	-
13.1.15 Interpolating readings, charts, and graphs								B	B	-
13.1.16 Frequency, Time, and Data Domains								A	-	-
13.1.17 Frequency Synthesis								A	B	-
13.1.18 Tolerances using equipment specifications	*							B	B	-
13.2 Measurement results										
13.2.1 Microwave measurements, power, attenuation, and voltage standing wave ratios (VSWR)								-	B	-
13.2.2 Phase noise measurements (PNMs)								-	B	-
13.2.3 Signals using data-domain TMDE								-	-	-
13.2.4 Uncertainty principles ANSI Z-540-3, ISO 17025								B	-	-
13.2.5 Flow calibrations								-	-	-
13.3 General maintenance practices TR: TO 00-25-234										
13.3.1 Design or fabricate specialized TMDE test devices, loads, cables, adapters, and test fixtures								-	-	-
13.3.2 Identify/recycle recoverable precious metals								-	-	-
13.3.3 Inspect TMDE for loose, foreign, and missing objects	*							2b	-	-
13.3.4 Inspect/replace common electrical hardware, power plugs, and fuses TR: TO 33-1-32	*							2b	-	-
13.3.5 Perform preventive maintenance inspections (PMIs)								b	-	-
13.3.6 Perform time compliance technical order (TCTO) process								-	-	a
13.3.7 Solder and Desolder										
13.3.7.1 Terminal Connection								2b	-	-
13.3.7.2 Printed Circuit Board (PCB)								2b	-	-
13.3.7.3 Multi-pin Connector								2b	-	-
13.3.8 Assemble Solderless Connectors										
13.3.8.1 Crimped Connection								2b	-	-
13.3.8.2 Coaxial Connector								2b	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
13.3.8.3 Multi-pin Connector								2b	-	-
13.4 Infrared TR: Specific Equipment TO and/or Commercial Data								-	-	-
13.5 Temperature TR: NAVAIR 17-35QAL-2								B	B	-
13.6 Humidity TR: NAVAIR 17-35QAL-2								B	B	-
13.7 Pressure TR: TO 33-1-19								B	B	-
13.8 Vacuum TR: TO 33-1-19								B	B	-
13.9 Vibration TR: TO 33A1-11-39-1 (AF75E); Comm Data (9610)								-	B	-
13.10 Force TR: NAVAIR 17-35QAL-2								-	B	-
13.11 Torque TR: TO 32B14-3-1-101								B	B	-
13.12 Linear Measurement TR: TOs 32-1-101, 32-1-201								B	B	-
13.13 Angular Measurement TR: TOs 32-1-101, 32-1-201								-	B	-
13.14 Mass and Weight TR: NAVAIR 17-35QAL-2								B	B	-
13.15 Flow TR: NAVAIR 17-35QAL-2								-	B	-
13.16 Density TR: NAVAIR 17-35QAL-2								-	B	-
13.17 Viscosity TR: NAVAIR 17-35QAL-2								-	-	-
13.18 Optics TR: NAVAIR 17-35QAL-9								-	B	-
13.19 Rotary Motion TR: NAVAIR 17-35QAL-2								-	B	-
13.20 Sound TR: TOs 33A1-7-206-1 (1551-C), 33D7-45-22-1 (2290-9159)								-	-	-
13.21 Spectrum Analysis TR: Specific Equipment TO and/or Commercial Data (Agilent 150 series App Notes)								-	A	B
13.22 Signature Analysis TR: TO 33D7-10-128-1								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
13.23 ILS/VOR TR: TO 33A1-3-504-1								-	B	-
13.24 Troubleshooting Theory								B	B	-
13.25 TACAN TR: MIL-STD-291C								-	-	A
13.26 IFF TR: MIL-STD-199E								-	-	A
13.27 Resistance TR: TO 33A1-12-689-1								-	B	-
13.28 Pulse TR: IEEE STD 181-2003								-	A	-
13.29 High Frequency Synthesis TR: TO 33A1-8-1035-1								-	A	B
13.30 Distortion TR: TO 33A1-5-269-11								-	B	-
13.31 Attenuation TR: TO 33A1-7-59-1, 33A1-7-177-1								-	A	-
13.32 Equipment Theory										
13.32.1 Voltage Divider TR: TO 33AA22-32-1 (720A); Comm Data (752A)								-	B	-
13.32.2 Meter Calibrator TR: TOs 33A1-12-1362-1 (5700A), 33A1-12-1366-1 (5725A); Comm Data (5500A/5520A, 5720A); 5320A								-	A	B
13.32.3 Multimeters TR: TO 33A1-12-1215-1 8840A/AF,(34410A); Comm Data (77 Series, 87 Series)								-	B	-
13.32.4 Function Generator TR: TO 33A1-8-877-1								-	B	-
13.32.5 Oscilloscope Calibrator TR: 33D7-45-111-1								-	B	-
13.32.6 Measuring Receiver TR: Comm Data; N5530S and 8902								-	A	B
13.32.7 Crystal Detector TR: TO 33A1-5-330-1 (423A)								-	A	-
13.32.8 Scales										
13.32.8.1 Personnel weighing scales TR: (NIST) Handbook 44								-	A	-
13.32.8.2 Aircraft weighing scales TR: Intercomp Comm data								-	A	-
14 AC/DC ELECTRICAL MEASUREMENT STANDARDS/TMDE TR: TOs 33K-1-100-1/-2, 33K Series										
14.1 Resistance TR: TOs 33AA6-13-1 (240C), 33A1-12-450-1 (RS925), 33A1-12-689-1 (DB-62), 33A1-12-1090-1 (242E); Comm Data (SR1060, MRS-9107)										
14.1.1 Use	*							2b	-	b
14.1.2 Align								-	-	-
14.1.3 Troubleshoot/Repair								-	-	-
14.1.4 Calibrate		*						-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
14.2 Resistance Measuring System Comm Data (6625AF)										
14.2.1 Use		*						-	-	a
14.2.2 Align								-	-	-
14.2.3 Troubleshoot/Repair								-	-	-
14.2.4 Calibrate								-	-	-
14.3 Capacitance TR: TO 33A1-12-500-1 (1419A); Comm Data (SS-32, 16380A, 16380C)										
14.3.1 Use	*							-	a	-
14.3.2 Troubleshoot/Repair								-	-	-
14.3.3 Calibrate								-	-	-
14.4 Inductance TR: TO 33A1-12-445-1 (1482L)										
14.4.1 Use								-	-	-
14.4.2 Troubleshoot/Repair								-	-	-
14.4.3 Calibrate								-	-	-
14.5 DC Voltage Divider TR: TO 33AA22-36-1 (720A); Comm Data (752A)										
14.5.1 Use	*							2b	-	-
14.5.2 Align								-	-	-
14.5.3 Troubleshoot/Repair								-	-	-
14.5.4 Calibrate								-	-	-
14.6 AC Ratio Transformer/Divider TR: TOs 33AA22-8-21 (RT5, RT20A), 33AA22-15-1 (DT72A)										
14.6.1 Use								-	-	-
14.6.2 Troubleshoot/Repair								-	-	-
14.6.3 Calibrate								-	-	-
14.7 Capacitance Bridges TR: Comm Data (AH2700, 1621)										
14.7.1 Use								-	a	-
14.7.2 Align								-	-	-
14.7.3 Troubleshoot/Repair								-	-	-
14.7.4 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
14.8 Kelvin-ratio Bridges TR: TO 33A1-6-153-1 (240C)										
14.8.1 Use								-	-	-
14.8.2 Align								-	-	-
14.8.3 Troubleshoot/Repair								-	-	-
14.8.4 Calibrate								-	-	-
14.9 DC Voltage Standards TR: Comm Data (5440B)										
14.9.1 Use								-	-	-
14.9.2 Align								-	-	-
14.9.3 Troubleshoot/Repair								-	-	-
14.9.4 Calibrate								-	-	-
14.10 AC Voltage Standards TR: TO 33D7-45-51-1 (5200A)										
14.10.1 Use								-	-	-
14.10.2 Align								-	-	-
14.10.3 Troubleshoot/Repair								-	-	-
14.10.4 Calibrate								-	-	-
14.11 Power Supply TR: TOs 33AA17-110-1 (6202B), 35C1-2-177 (6267A), 33DA11-75-1 (6434B)										
14.11.1 Use								-	-	-
14.11.2 Align								-	-	-
14.11.3 Troubleshoot/Repair								-	-	-
14.11.4 Calibrate								-	-	-
14.12 Instrument/Electronic Calibrator TR: TOs 33A1-12-1381-8 (5700A), 33A1-2-304-1 (5725A), 33D2-3-27-11 (5320A); Comm Data (5500A/5520A, 5720A, 5790A/AF)										
14.12.1 Use	*							2b	-	-
14.12.2 Align								-	-	-
14.12.3 Troubleshoot/Repair								-	-	-
14.12.4 Calibrate		*						-	-	-
14.13 Analog Passive Multimeter TR: TOs 33A1-12-773 (260-AFP1), 33A1-12-1187-1 (260-6XLP)										
14.13.1 Use								2b	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
14.13.2 Align								2b	-	-
14.13.3 Troubleshoot/Repair								2b	-	-
14.13.4 Calibrate								2b	-	-
14.14 High Accuracy Digital Multimeter TR: TOs 33A1-12-1350 (3458A), 33D9-57-119 (8506A), 33A1-12-1386-1 (8508A)										
14.14.1 Use	*							2b	-	-
14.14.2 Align								-	-	-
14.14.3 Troubleshoot/Repair								-	-	-
14.14.4 Calibrate		*						-	-	-
14.15 Digital Multimeter TR: TO 33A1-12-1215-1 (8840A/AF), 33A1-12-103-1 (34401A); Comm Data (77 Series, 87 Series)										
14.15.1 Use								2b	-	-
14.15.2 Align								2b	-	-
14.15.3 Troubleshoot/Repair								b	-	-
14.15.4 Calibrate	*							2b	-	-
14.16 Capacitor/Inductor Analyzer TR: Comm Data (LC53, LC75, 1689-9751)										
14.16.1 Use								-	-	-
14.16.2 Align								-	-	-
14.16.3 Troubleshoot/Repair								-	-	-
14.16.4 Calibrate								-	-	-
14.17 Conductivity Meter TR: TO 33C2-90-1 (1152)										
14.17.1 Use								-	-	-
14.17.2 Align								-	-	-
14.17.3 Troubleshoot/Repair								-	-	-
14.17.4 Calibrate								-	-	-
14.18 High Resistance TMDE TR: TO 33A1-12-234-1 (544B); Comm Data (RX-1LM, 6500A, 6517A/AF, 100-H-AF)										
14.18.1 Use								-	-	-
14.18.2 Align								-	-	-
14.18.3 Troubleshoot/Repair								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
14.18.4 Calibrate								-	-	-
14.19 High Voltage TMDE TR: TOs 33A1-12-120 (MD1), 33A1-12-1053-1 (HD103), 33D7-6-315-1 (ANALM187A); Comm Data (ESMOO, DB40-.05)										
14.19.1 Use								-	-	-
14.19.2 Align								-	-	-
14.19.3 Troubleshoot/Repair								-	-	-
14.19.4 Calibrate								-	-	-
14.20 Generator Detector TR: TOs 33A1-12-925 (801( )), 33D7-22-33 (1238)										
14.20.1 Use								-	-	-
14.20.2 Align								-	-	-
14.20.3 Troubleshoot/Repair								-	-	-
14.20.4 Calibrate								-	-	-
14.21 AC/DC Transfer Standard TR: TO 33A1-12-1355 (5790A)										
14.21.1 Use	*							-	a	-
14.22 Phase Standard TR: TOs 33A1-5-496 (650), 33A1-8-822-1 (411); Comm Data (5000/6000, 5500-2)										
14.22.1 Use								-	a	-
14.22.2 Align								-	-	-
14.22.3 Troubleshoot/Repair								-	-	-
14.22.4 Calibrate								-	-	-
14.23 Null Detector TR: TO 33A1-6-115-1 (845)); Comm Data (AVM-100)										
14.23.1 Use								-	a	-
14.23.2 Align								-	-	-
14.23.3 Troubleshoot/Repair								-	-	-
14.23.4 Calibrate								-	-	-
14.24 Differential Voltmeter TR: TOs 33A1-12-804-11 (931B), 33A1-12-792-11 (887AB)										
14.24.1 Use								-	-	-
14.24.2 Align								-	-	-
14.24.3 Troubleshoot/Repair								-	-	-
14.24.4 Calibrate								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
14.25 Clamp-on Voltmeter/Ammeter TR: TO 33A1-12-212 (633VA1)										
14.25.1 Use								-	-	-
14.25.2 Align								-	-	-
14.25.3 Troubleshoot/Repair								-	-	-
14.25.4 Calibrate								-	a	-
14.26 Ohmmeter TR: TO 33A1-12-850-1 (670A); Comm Data (620-4)										
14.26.1 Use								-	-	-
14.26.2 Align								-	-	-
14.26.3 Troubleshoot/Repair								-	-	-
14.26.4 Calibrate								-	-	-
14.27 AC Voltmeter TR: TOs 33A1-12-249-31 (400E), 33A1-12-643-1 (3400A), 33A1-12-1094-1 (3015A)										
14.27.1 Use								2b	-	-
14.27.2 Align								2b	-	-
14.27.3 Troubleshoot/Repair								-	-	-
14.27.4 Calibrate								2b	-	-
14.28 RF Millivoltmeter TR: TOs 33A1-12-949-1 (92A-S2), 33A1-12-1097-1 (MV823A1)										
14.28.1 Use								-	-	-
14.28.2 Align								-	-	-
14.28.3 Troubleshoot/Repair								-	-	-
14.28.4 Calibrate								-	-	-
14.29 Phase-angle Voltmeter TR: TOs 33A1-12-755-1 (2129880-( )), 33A1-12-967 (244RS);										
14.29.1 Use								-	-	-
14.29.2 Align								-	-	-
14.29.3 Troubleshoot/Repair								-	-	-
14.29.4 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
14.30 High-voltage Probe/Divider TR: TO 33AA22-31-1 (80F-15); Comm Data (2900A, 80E10, 80K( ))										
14.30.1 Use								b	-	-
14.30.2 Align								-	-	-
14.30.3 Troubleshoot/Repair										
14.30.4 Calibrate								-	-	-
14.31 AC/DC Current Shunt TR: Comm Data (A45/AF, HCF-1AF, 9211)										
14.31.1 Use		*						-	-	-
14.31.2 Calibrate								-	-	-
14.32 DC Reference Standard TR: TOs 33A1-12-327-1 (9152-4), 33A1-12-1385-1 (734A/AF)										
14.32.1 Use		*						-	-	-
14.32.2 Intercompare		*						-	-	a
14.33 Transconductance Amplifier TR: TO 33A1-2-276-1 (1620A); Comm Data (8100, 5220)										
14.33.1 Use								-	-	-
14.33.2 Align								-	-	-
14.33.3 Troubleshoot/Repair								-	-	-
14.33.4 Calibrate								-	-	-
14.34 Electric Load TR: TO 33DA22-31-11 (EL750 ( ))										
14.34.1 Use								-	-	-
14.34.2 Align								-	-	-
14.34.3 Troubleshoot/Repair								-	-	-
14.34.4 Calibrate								-	-	-
14.35 Analog Active Voltmeter TR: TO 33A1-12-848-1 (427A)										
14.35.1 Use								-	-	-
14.35.2 Align								-	-	-
14.35.3 Troubleshoot/Repair								-	-	-
14.35.4 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
15 TIME, TIME DOMAIN, FREQUENCY, FREQUENCY DOMAIN, DATA DOMAIN AND WAVEFORM ANALYSIS STANDARDS/TMDE TR: TOs 33K-1-100-1/-2, 33K3 Series										
15.1 Time Domain Reflectometer TR: TOs 33A1-4-73 (1502), 33A1-12-1155-1 (1503)										
15.1.1 Use								-	-	-
15.1.2 Align								-	-	-
15.1.3 Troubleshoot/Repair								-	-	-
15.1.4 Calibrate								-	-	-
15.2 Function Generator TR: TOs 33A1-8-840 (1425527), 33A1-8-847-1 (FG502), 33A1-8-877-1 (3325A), 33A1-8-840-1 (SG1146)										
15.2.1 Use	*							2b	-	-
15.2.2 Align								b	-	-
15.2.3 Troubleshoot/Repair								b	-	-
15.2.4 Calibrate	*							2b	-	-
15.3 Pulse TMDE TR: TOs 33A1-8-394-1 (214A), 33A1-8-784-11 (PG506), 33A1-8-809-1 (PG502), 33A1-8-886-1 (214B), 33A1-8-934-1 (8112A)										
15.3.1 Use	*							2b	-	-
15.3.2 Align								-	-	-
15.3.3 Troubleshoot/Repair								-	-	-
15.3.4 Calibrate								-	-	-
15.4 Oscilloscope Calibration System TR: TO 33A1-8-119-1 (F7529A); Comm Data (9500B/3200AF)										
15.4.1 Use	*							2b	-	-
15.4.2 Align								-	-	-
15.4.3 Troubleshoot/Repair								-	-	-
15.4.4 Calibrate	*							-	-	-
15.5 Standard Sampling System TR: TOs 33A1-13-687-2 (11801B/C); 33A1-10-315-8-1 (SD-24); Comm Data (067-1413-00, 86100C w/86117A)										
15.5.1 Use		*						-	-	a
15.5.2 Align								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
15.5.3 Troubleshoot/Repair								-	-	-
15.5.4 Calibrate								-	-	-
15.6 Signal Generator/Oscillator TR: TOs 33A1-8-523 (652A), 33A1-8-760-31 (8640B), 33A1-8-1081-1 (9610A/AF); Comm Data (E8257D)										
15.6.1 Use	*							2b	-	-
15.6.2 Align								2b	-	-
15.6.3 Troubleshoot/Repair								b	-	-
15.6.4 Calibrate	*							2b	-	-
15.7 Low Frequency Synthesizer TR: TOs 33A1-8-863-1 (6011A), 33A1-8-895-1 (3335A); Comm Data (9640A/AF)										
15.7.1 Use	*							-	-	-
15.7.2 Align								-	-	-
15.7.3 Troubleshoot/Repair								-	-	-
15.7.4 Calibrate	*							-	-	-
15.8 High Frequency Synthesizer TR: TOs 33A1-8-851-1 (8672A), 33A1-8-955-1 (8673), 33A1-8-1059 (8673( )); Comm Data (MB 3693B( ), 68000)										
15.8.1 Use	*							2b	-	-
15.8.2 Align								-	-	-
15.8.3 Troubleshoot/Repair								-	-	-
15.8.4 Calibrate		*						-	-	-
15.9 Feedthrough Load TR: Comm Data										
15.9.1 Use	*							2b	-	-
15.9.2 Calibrate								-	-	-
15.10 Audio/Distortion Analyzer TR: TOs 33A1-5-269-11 (334A), 33A1-5-503-1 (TS4084), 33A1-13-722-1 (8903B)										
15.10.1 Use	*							2b	-	-
15.10.2 Align								2b	-	-
15.10.3 Troubleshoot/Repair								b	-	-
15.10.4 Calibrate								2b	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
15.11 Spectrum Analyzer TR: TOs 33A1-13-607 (8592( )), 33A1-13-658-2 (8563( )), 33D7-10-129-1 (8566A), (E-Series P/Ns)										
15.11.1 Use	*							2b	-	-
15.11.2 Align								-	-	-
15.11.3 Troubleshoot/Repair								-	-	-
15.11.4 Calibrate		*						-	-	-
15.12 Precise Frequency TR: Comm Data (2100F, 1083B, 2200, 5060 Series)										
15.12.1 Use	*							2b	b	-
15.12.2 Align								-	-	-
15.12.3 Troubleshoot/Repair								-	-	-
15.13 RF/Microwave Power Amplifiers TR: TOs 33A1-2-90 (495A), 33A1-2-229 (8447A)										
15.13.1 Use								-	-	-
15.13.2 Align								-	-	-
15.13.3 Troubleshoot/Repair								-	-	-
15.13.4 Calibrate								-	-	-
15.14 Comb Generator TR: TO 33A1-5-251 (8406A)										
15.14.1 Use								-	-	-
15.14.2 Align								-	-	-
15.14.3 Troubleshoot/Repair								-	-	-
15.14.4 Calibrate								-	-	-
15.15 Electronic Counter/Timer TR: TOs 33A1-10-200-1 (5345( )), 33A1-10-254-1 (5335( )), 33A1-10-278 (5334( )), 33A1-10-287-1 (1992( )), 33A1-10-293 (548( )); Comm Data (PM6654C/AC, 53132A)										
15.15.1 Use	*							2b	b	-
15.15.2 Align								-	-	-
15.15.3 Troubleshoot/Repair								b	-	-
15.15.4 Calibrate	*							2b	-	-
15.16 Vector Voltmeter TR: TO 33A1-12-1386-1 (8508A)										
15.16.1 Use								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
15.16.2 Align								-	-	-
15.16.3 Troubleshoot/Repair								-	-	-
15.16.4 Calibrate								-	-	-
15.17 Thermal Voltage Converters TR: Comm Data (11000 Series)										
15.17.1 Use	*							2b	b	-
15.17.2 Calibrate								-	-	-
15. 18 Oscilloscope, TR: TOs 33A1-13-491 (7000 Series), 33A1-13-591-2 (2246); Comm Data (TDS 2014)										
15.18.1 Use								2b	-	-
15.18.2 Align								2b	-	-
15.18.3 Troubleshoot/Repair								b	-	-
15.18.4 Calibrate								2b	-	-
15.19 Oscilloscope Plug-in Units TR: TO 33A17-12-1 (7A13)										
15. 19.1 Use								-	-	-
15. 19.2 Align								-	-	-
15. 19.3 Troubleshoot/Repair								-	-	-
15. 19.4 Calibrate								-	-	-
15.20 Oscilloscope calibration Fixture Plug-in Units TR: TO 33DA21-326-1 (067-0587-02)										
15.20.1 Use								-	-	-
15.20.2 Align								-	-	-
15.20.3 Troubleshoot/Repair								-	-	-
15.20.4 Calibrate								-	-	-
15.21 Balancer Analyzer TR: Comm Data (8500-C, 9935-2, 9000 Series)										
15.21.1 Use								-	-	-
15.21.2 Align								-	-	-
15.21.3 Calibrate								-	-	-
15.22 Oscilloscope, Digital, Waveform, Digitizing TR: TOs 33A1-13-526 (7854), 33A1-13-583 (54111D), 33A1-13-586 (54110D), 33A1-5-43-11 (LC584AL)										
15.22.1 Use	*							2b	b	-

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1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
15.22.2 Align								-	-	-
15.22.3 Troubleshoot/Repair								-	-	-
15.22.4 Calibrate	*							2b	-	-
15.23 Selective Level Voltmeter TR: TO 33A1-5-467-1 (3586( ))										
15.23.1 Use								-	-	-
15.23.2 Align								-	-	-
15.23.3 Troubleshoot/Repair								-	-	-
15.23.4 Calibrate								-	-	-
15.24 AM/FM Test Source TR: TO 33A1-8-1121-1 (11715A)										
15.24.1 Use								-	-	-
15.24.2 Align								-	-	-
15.24.3 Troubleshoot/Repair								-	-	-
15.24.4 Calibrate								-	-	-
16 MICROWAVE MEASUREMENT STANDARDS/TMDE TR: TOs 33K-1-100-1/-2, 33K Series; Comm Data										
16.1 Attenuator TR: TOs 33AA36-10-1 (8491), 33AA36-33-1 (8496)										
16.1.1 Use								2b	-	-
16.1.2 Calibrate	*							-	-	-
16.2 Waveguide/Coaxial Directional Coupler TR: TOs 33A1-12-1230-1 (1852( )), 33D7-13-17-1 (752), 33DA100-5-1 (779( ))										
16.2.1 Use								-	a	-
16.2.2 Calibrate								-	-	-
16.3 Thermistor Mount/Power Sensor TR: TOs 33A1-9-47-1 (478A), 33A1-9-52-1 (8478A), 33A1-9-54-1 (GIL360), 33A1-7-270-1 (8481A/H); Comm Data (E-Series)										
16.3.1 Use	*							2b	b	-
16.3.2 Troubleshoot/Repair								-	-	-
16.3.3 Calibrate	*							-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
16.4	Power Meter TR: TOs 33A1-7-205-1 (432A), 33A1-7-261-1 (436A); Comm Data (437, 438, E Series, 1830A)										
16.4.1	Use	*							2b	b	-
16.4.2	Align								2b	-	-
16.4.3	Troubleshoot/Repair								b	-	-
16.4.4	Calibrate	*							2b	-	-
16.5	Termination TR: TOs 33AA7-67-1 (914A/B), 33AA7-78-1 (905A)										
16.5.1	Use								-	-	a
16.5.2	Calibrate								-	-	-
16.6	Noise Source TR: TO 33A1-6-168-1 (346B)										
16.6.1	Use								-	-	-
16.6.2	Calibrate								-	-	-
16.7	Power Divider /Power Splitter TR: TOs 33K4-4-597-1 (1506A), 33K4-4-510-1 (11667A)										
16.7.1	Use								-	-	-
16.7.2	Calibrate								-	-	-
16.8	Measuring Receiver TR: TOs 33A1-5-478-1 (1295), 33A1-10-296 (8902( ))										
16.8.1	Use									-	-
16.8.2	Align								-	-	-
16.8.3	Troubleshoot/Repair								-	-	-
16.8.4	Calibrate								-	-	-
16.9	Detector TR: TO 33A1-5-330-1 (423A)										
16.9.1	Use								2b	-	-
16.9.2	Troubleshoot/Repair								-	-	-
16.10	Network Analyzer TR: TOs 33D7-10-64 (8411A), 33D7-10-186 (85100), 33D7-20-45 (8410B), 33D7-10-182 (8757 ( ))										
16.10.1	Use								-	-	-
16.10.2	Align								-	-	-
16.10.3	Troubleshoot/Repair								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
16.10.4 Calibrate								-	-	-
16.11 SWR Meter TR: TO 33A1-6-33 (415B/E)										
16.11.1 Use								-	-	-
16.11.2 Align								-	-	-
16.11.3 Troubleshoot/Repair								-	-	-
16.11.4 Calibrate								-	-	-
16.12 Swept Frequency Generator TR: TO33A1-8-1054-12-1 (8340B); Comm data (8643)										
16.12.1 Use								-	-	b
16.12.2 Align/								-	-	-
16.12.3 Troubleshoot/Repair								-	-	-
16.12.4 Calibrate								-	-	-
16.13 RF Wattmeter TR: TO 33A1-5-317 (TS1771AU)										
16.13.1 Use								-	-	-
16.13.2 Align								-	-	-
16.13.3 Troubleshoot/Repair								-	-	-
16.13.4 Calibrate								-	-	-
16.14 Wattmeter calibrator TR: TO 33A1-2-268 (SSPAO240-22/6140)										
16.14.1 Use								-	-	-
16.14.2 Troubleshoot/Repair								-	-	-
16.15 Use Power Standard TR: TOs 33A1-12-1230-1 (1852( )); Comm Data (4421A300)								-	-	-
16.16 Peak Power Calibrator TR: Comm Data (2760)										
16.16.1 Use								-	-	-
16.16.2 Align								-	-	-
16.16.3 Troubleshoot/Repair								-	-	-
16.16.4 Calibrate								-	-	-
16.17 Power Meter Calibrator TR: TOs 33A1-7-226 (8477A), 33D7-45-76-1 (11683A)										
16.17.1 Use								2b	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
16.17.2 Align								-	-	-
16.17.3 Troubleshoot/Repair								-	-	-
16.17.4 Calibrate								-	-	-
16.18 RF Peak Power Meter TR: TOs 33A1-7-263-11 (), 33A1-7-299 (8501/8502); Comm Data (4400)										
16.18.1 Use								-	-	a
16.18.2 Align								-	-	-
16.18.3 Troubleshoot/Repair								-	-	-
16.18.4 Calibrate								-	-	-
16.19 Power Measurement Calibration System TR: Comm Data (PMCS)										
16.19.1 Use	*							-	-	-
16.19.2 Align								-	-	-
16.19.3 Troubleshoot/Repair								-	-	-
16.19.4 Calibrate								-	-	-
16.20 Phase Noise Measurement System TR: Comm Data (E5504B))										
16.20.1 Use		*						-	-	a
16.20.2 Align								-	-	-
16.20.3 Troubleshoot/Repair								-	-	-
16.20.4 Calibrate								-	-	-
16.21 Noise Figure Measurement System TR: TO 33A1-6-164 (8970V)										
16.21.1 Use								-	-	-
16.21.2 Align								-	-	-
16.21.3 Troubleshoot/Repair								-	-	-
16.21.4 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
16.22 Noise Source Calibration System TR: TO 33A1-3-1030-1 (TA110000-622)										
16.22.1 Use								-	-	-
16.23 Waveguide Mount Coupler Set TR: Comm Data (WGMC8-40)										
16.23.1 Use								-	-	-
16.24 Photometric Calibration System TR: Comm Data (BHSPMS-1)										
16.24.1 Use								-	-	-
16.24.2 Align								-	-	-
16.24.3 Troubleshoot/Repair								-	-	-
16.24.4 Calibrate								-	-	-
16.25 Spectral Radiance Standards TR: Comm Data (RS-3, RS-10( ), RS-11( ))										
16.25.1 Use								-	-	-
16.25.2 Align								-	-	-
16.25.3 Troubleshoot/Repair								-	-	-
16.25.4 Calibrate								-	-	-
16.26 Use Power Measurement Standard TR: Comm Data (PM2)								-	-	-
16.27 Fiber Optics Calibration System TR: Comm Data (FOSC1, FOCUS, 81623B-E01, 81655A-E02)										
16.27.1 Use								-	-	-
16.27.2 Align								-	-	-
16.27.3 Troubleshoot/Repair								-	-	-
16.27.4 Calibrate								-	-	-
16.28 Fiber Optic TMDE TR: TO 33DA122-6-21 (81655A-E02); Comm Data (OF150, OF152, TD1000( ))										
16.28.1 Use								-	-	-
16.28.2 Align								-	-	-
16.28.3 Troubleshoot/Repair								-	-	-
16.28.4 Calibrate								-	-	-
16.29 Microwave Measurement Receiver /System (MMR/MMS) TR: Comm Data (N5530SE( ))										

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
16.29.1 Use	*							2b	-	-
16.29.2 Align								-	-	-
16.29.3 Troubleshoot/Repair								-	-	-
16.29.4 Calibrate		*						-	-	-
17 PHYSICAL MEASUREMENT STANDARDS/TMDE TR: TOs 32-1-201, 33K-1-100-1/-2, 33K Series										
17.1 Linear Standards TR: Comm Data (88)										
17.1.1 Use	*							2b	-	-
17.1.2 Calibrate								-	-	-
17.2 Electronic Height Gages TR: Comm Data (432, 715, 812-CX-1)										
17.2.1 Use								-	-	a
17.2.2 Align								-	-	-
17.2.3 Troubleshoot/Repair								-	-	-
17.2.4 Calibrate								-	-	-
17.3 Gage Block Comparator TR: Comm Data (130B Series)										
17.3.1 Use								-	-	-
17.3.2 Align								-	-	-
17.3.3 Troubleshoot/Repair								-	-	-
17.3.4 Calibrate								-	-	-
17.4 Supermicrometers TR: Comm Data (2000, Model B, 828, 400B())										
17.4.1 Use								-	-	-
17.4.2 Align								-	-	-
17.4.3 Troubleshoot/Repair								-	-	-
17.4.4 Calibrate								-	-	-
17.5 Linear Measuring TMDE TR: Comm Data (GGGC105, GGGC111, 25 Series Dial Indicator)										
17.5.1 Use								2b	-	-
17.5.2 Align								-	-	-
17.5.3 Troubleshoot/Repair								-	-	-
17.5.4 Calibrate	*							2b	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
17.6	Angular Standards TR: Comm Data (88, 16AA, 470 51D23054)										
17.6.1	Use								-	-	a
17.6.2	Troubleshoot/Repair								-	-	-
17.6.3	Calibrate								-	-	-
17.7	Angular Measuring TMDE TR: TOs 33-1-201 (GGGL211B), 33D9-57-27-1 (TB107A); Comm Data (EMD-842P-50)										
17.7.1	Use								-	-	a
17.7.2	Align								-	-	-
17.7.3	Troubleshoot/Repair								-	-	-
17.7.4	Calibrate								-	-	-
17.8	Levels, other than optical levels TR: Comm Data (199)										
17.8.1	Use								-	-	-
17.8.2	Align								-	-	-
17.8.3	Troubleshoot/Repair								-	-	-
17.8.4	Calibrate								-	-	-
17.9	Temperature Standards TR: TO 33C3-16-1 (3.5B-67248); Comm Data (CS77, PRTs, 5303, 5309, 3605-1-101, 9210 w/5901)										
17.9.1	Use	*							b	-	-
17.9.2	Align								-	-	-
17.9.3	Troubleshoot/Repair								-	-	-
17.9.4	Calibrate								-	-	-
17.10	Portable Dry Well Temperature Calibrator TR: Comm Data (9143-A-P)								-	-	-
17.10.1	Use								-	-	-
17.11	Temperature Measuring TMDE TR: Comm Data (77)										
17.11.1	Use								b	-	-
17.11.2	Align								-	-	-
17.11.3	Troubleshoot/Repair								-	-	-
17.11.4	Calibrate	*							b	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
17.12 Humidity Standards TR: Comm Data (2500)										
17.12.1 Use								-	-	-
17.12.2 Align								-	-	-
17.12.3 Troubleshoot/Repair								-	-	-
17.12.4 Calibrate								-	-	-
17.13 Humidity Measuring TMDE TR: Comm Data (566, 08T2P, SA760A, 2626S, CT485, 2500S)										
17.13.1 Use	*							-	a	-
17.13.2 Align								-	-	-
17.13.3 Troubleshoot/Repair								-	-	-
17.13.4 Calibrate		*						-	-	-
17.14. Vacuum Standards TR: TOs 33A7-4-73-1 (2200), 33C2-91-1 (80-6); Comm Data (PVS-1-10)										
17.14.1 Use										b
17.15 High Vacuum Pumping Systems TR: TO 33A7-4-48-1 (VR300)										
17.15.1 Use								-	-	-
17.16 Vacuum Gages TR: Comm Data (GV3, VT6)										
17.16.1 Use								-	-	b
17.16.2 Align								-	-	-
17.16.3 Troubleshoot/Repair								-	-	-
17.16.4 Calibrate								-	-	-
17.17 Pneumatic Pressure Standards TR: Comm Data (3682, PPC2AF, ADC-2500)										
17.17.1 Use	*							-	a	-
17.17.2 Align								-	-	-
17.17.3 Troubleshoot/Repair								-	-	-
17.17.4 Calibrate		*						-	-	-
17.18 Hydraulic Pressure Standards TR: TO 33A6-4-7-11 (E-DWT-10000-AF); Comm Data (10-10525, HGC-30000-AF)										
17.18.1 Use	*							2b	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
17.18.2 Align								-	-	-
17.18.3 Troubleshoot/Repair								-	-	-
17.18.4 Calibrate								-	-	-
17.19 Primary Pressure Standards TR: TO 33A6-4-15-1 (120X); Comm Data (2465-601-58500), (PG7601)										
17.19.1 Use		*						-	-	b
17.19.2 Align								-	-	-
17.19.3 Troubleshoot/Repair								-	-	-
17.19.4 Calibrate								-	-	-
17.20 Pneumatic Pressure Gages TR: TO 33-1-19 (3461); Comm Data (Model C/H)										
17.20.1 Use								-	-	-
17.20.2 Align	*							-	-	-
17.20.3 Troubleshoot/Repair								-	-	-
17.20.4 Calibrate	*							-	-	-
17.21 Hydraulic Pressure Gages TR: TO 33-1-19 (3461); Comm Data (Model C/H)										
17.21.1 Use								2b	-	-
17.21.2 Align	*							-	-	-
17.21.3 Troubleshoot/Repair								-	-	-
17.21.4 Calibrate	*							2b	-	-
17.22 Pressure Measuring TMDE/Transducers TR: Comm Data (2100 Series, 6200 Series)										
17.22.1 Use								-	-	-
17.22.2 Align								-	-	-
17.22.3 Troubleshoot/Repair								-	-	-
17.22.4 Calibrate								-	-	-
17.23 Mass and Weight Standards TR: Comm Data (1100, S1, MMS)										
17.23.1 Use	*							2b	-	-
17.23.2 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
17.24 Scales TR: Comm Data (400 Series, 6437)										
17.24.1 Use								2b	-	-
17.24.2 Align								-	-	-
17.24.3 Troubleshoot/Repair								-	-	-
17.24.4 Calibrate								2b	-	-
17.25 Precision/Analytical Balances TR: Comm Data (PM30000K, MT5, AT Series, MSU225S-000-DU)										
17.25.1 Use								-	-	-
17.25.2 Align								-	-	-
17.25.3 Troubleshoot/Repair								-	-	-
17.25.4 Calibrate								-	-	-
17.26 Tachometer Standards TR: Comm Data (230440-1, H8224-837837)										
17.26.1 Use								-	a	-
17.26.2 Align								-	-	-
17.26.3 Troubleshoot/Repair								-	-	-
17.26.4 Calibrate								-	-	-
17.27 Tachometer Measuring TMDE TR: TO 33D2-6-102										
17.27.1 Use								-	-	-
17.27.2 Align								-	-	-
17.27.3 Troubleshoot/Repair								-	-	-
17.27.4 Calibrate								-	-	-
17.28 Torque Standards TR: Comm Data (CDI2000, CDT 2400, TTS250AFK))										
17.28.1 Use	*							2b	-	-
17.28.2 Align								-	-	b
17.28.3 Troubleshoot/Repair								-	-	-
17.28.4 Calibrate		*						-	-	b
17.29 Torque TMDE TR: TOs 32B14-3-1-101, 32B14-3-4-4										
17.29.1 Use								2b	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
17.29.2 Align	*							-	-	-
17.29.3 Troubleshoot/Repair								-	-	-
17.29.4 Calibrate	*							2b	-	-
17.30 Tensiometers TR: TO 33A3-3-2-1 (C Series, T5 Series, 1973TYPE8, 1973TYPE9)										
17.30.1 Use								-	-	-
17.30.2 Align								-	-	-
17.30.3 Troubleshoot/Repair								-	-	-
17.30.4 Calibrate								-	-	-
17.31 Force Standards TR: TO 33C2-75 (800260); Comm Data (DMP40)										
17.31.1 Use	*							-	a	-
17.31.2 Align								-	-	-
17.31.3 Troubleshoot/Repair								-	-	-
17.32 Force Measuring TMDE TR: TO 35B2-2-2 (C1); Comm Data (AN60, AC 30-60, MD400)										
17.32.1 Use								-	-	-
17.32.2 Align								-	-	-
17.32.3 Troubleshoot/Repair								-	a	-
17.32.4 Calibrate	*							-	-	-
17.33 Electronic Leveling System TR: (EMD-832P-50-W1)										
17.33.1 Use								-	-	-
17.33.2 Align								-	-	-
17.33.3 Troubleshoot/Repair								-	-	-
17.33.4 Calibrate								-	-	-
17.34 Surface plates TR: TO 32A19-51-1 (GGGP463)										
17.34.1 Use	*							-	-	-
17.34.2 Calibrate								-	-	-
17.35 Vibration Standards/Pickups TR: TO 33A1-11-39-1 (AF75( )); Comm Data (9610)										
17.35.1 Use								-	-	-
17.35.2 Align								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
17.35.3 Troubleshoot/Repair								-	-	-
17.35.4 Calibrate								-	-	-
17.36 Vibration TMDE TR: TO 33A1-11-39-1; Comm Data (PBS4100, 4-128, 2251)										
17.36.1 Use								-	-	-
17.36.2 Align								-	-	-
17.36.3 Troubleshoot/Repair								-	-	-
17.36.4 Calibrate								-	-	-
17.37 Flow Standards TR: Comm Data (31TA2073-1-( ), QAF-24-VWR-1SC, FCS-3A-SS-C, AL13, MOLBLOC, EF3946-FTS)										
17.37.1 Use								-	-	-
17.37.2 Align								-	-	-
17.37.3 Troubleshoot/Repair								-	-	-
17.37.4 Calibrate								-	-	-
17.38 Viscosity Measuring TMDE TR: Comm Data (MED2000)										
17.38.1 Use								-	-	-
17.39 Thermocouple Junctions/Calibrators TR: Comm Data (CJ Series, Xitron 2000M, AN6520-4A110, 1140B)										
17.39.1 Use	*							-	-	-
17.39.2 Align								-	-	-
17.39.3 Troubleshoot/Repair								-	-	-
17.39.4 Calibrate								-	-	-
17.40 Oxygen TMDE TR: TOs 15X-1-102, 37C11-1-1										
17.40.1 Inspect								-	b	-
17.40.2 Calibrate								-	-	-
17.41 Chemical Agent Alarm Systems TR: TO 33D5-6-7-3 (M140)										
17.41.1 Align								-	-	-
17.41.2 Troubleshoot/Repair								-	-	-
17.41.3 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
17.42 Boresight Fixtures, other than optical boresight fixtures TR: TO 33DA21-239-1 (16A75029-( )), 33DA21-244-1 (16A74029-( )), 33DA21-247-1 (16A74028-( )), 33DA21-272-1 (16A75055-( )), 33DA21-295-1 (16A75062-( ))										
17.42.1 Use								-	-	-
17.42.2 Align								-	-	-
17.42.3 Troubleshoot/Repair								-	-	-
17.42.4 Calibrate								-	-	-
17.43 Small Arms Gages TR: Comm Data (7319994 Series)										
17.43.1 Calibrate								-	-	-
17.44 LASER Measurement System TR: Comm Data (5528, ML10)										
17.44.1 Use								-	-	-
17.44.2 Calibrate								-	-	-
17.45 LASER measuring TMDE TR: Comm Data (Zygo 1202B)										
17.45.1 Use								-	-	-
17.45.2 Align								-	-	-
17.45.3 Troubleshoot/Repair								-	-	-
17.45.4 Calibrate								-	-	-
17.46 Roundness Machine TR: Comm Data (GT 50)										
17.46.1 Use								-	-	-
17.46.2 Calibrate								-	-	-
17.47 Dial Indicator Calibrator TR: Comm Data (Optimar 100, 400B-5)										
17.47.1 Use								-	-	-
17.47.2 Align								-	-	-
17.47.3 Troubleshoot/Repair								-	-	-
17.47.4 Calibrate								-	-	-
18 OPTICAL STANDARDS/TMDE										
18.1 Collimators/Autocollimators TR: Comm Data (714010, D600, TA Series)										
18.1.1 Use								-	-	-
18.1.2 Align								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
18.1.3	Troubleshoot/Repair								-	-	-
18.1.4	Calibrate								-	-	-
18.2	Optical Refractors/Mirrors TR: TO 33B4-8-9-1 (); Comm Data (D616, 290)										
18.2.1	Use								-	-	-
18.2.2	Calibrate								-	-	-
18.3	Optical Clinometer TR: Comm Data (142-43)										
18.3.1	Use								-	-	-
18.3.2	Align								-	-	-
18.3.3	Troubleshoot/Repair								-	-	-
18.3.4	Calibrate								-	-	-
18.4	Optical Comparators TR: Comm Data (EPIC30)										
18.4.1	Use								-	-	-
18.4.2	Align								-	-	-
18.4.3	Troubleshoot/Repair								-	-	-
18.4.4	Calibrate								-	-	-
18.5	Optical Micrometer TR: Comm Data (71-1112)										
18.5.1	Use								-	-	-
18.5.2	Calibrate								-	-	-
18.6	Optical Flats and parallels TR: Comm Data (D617)										
18.6.1	Use	*							2b	b	-
18.6.2	Calibrate								-	-	-
18.7	Theodolites, Transits, Optical and Surveying Levels TR: TO 49A8-4-1 (T-2); Comm Data (D626, 75( ), T Series, DT220)										
18.7.1	Use								-	-	-
18.7.2	Align								-	-	-
18.7.3	Troubleshoot/Repair								-	-	-
18.7.4	Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
18.8	Short Range Calibrator TR: Comm Data (714010, D600, 270BN)										
18.8.1	Use								-	-	-
18.8.2	Align								-	-	-
18.8.3	Troubleshoot/Repair								-	-	-
18.8.4	Calibrate								-	-	-
18.9	Heads-up-display (HUD) Alignment Equipment TR: Comm Data (587-10200-21)										
18.9.1	Use								-	-	-
18.9.2	Align								-	-	-
18.9.3	Troubleshoot/Repair								-	-	-
18.9.4	Calibrate								-	-	-
19	**F-15 TMDE** TR: Specific Equipment TO and/or Comm Data										
19.1	Control Stick Boost and Pitch Controller (CSBPC) TR: TOs 33D2-5-71-1 (68D30002-1001), 33D2-5-76-1 (68D300041-1001)										
19.1.1	Align/Troubleshoot/Repair								-	-	-
19.1.2	Calibrate								-	-	-
19.2	Gun Control Test Set TR: TO 33D5-12-209-1 (68D150015-1001)										
19.2.1	Align/Troubleshoot/Repair								-	-	-
19.2.2	Calibrate								-	-	-
19.3	Instrument Landing System (ILS) Test Set TR: TO 33D2-6-207-11 (1993142)										
19.3.1	Align/Troubleshoot/Repair								-	-	-
19.3.2	Calibrate								-	-	-
19.4	Input/Output Simulator TR: TO 33D7-8-101 (68D040040-1001)										
19.4.1	Use								-	-	-
19.4.2	Troubleshoot/Repair								-	-	-
19.5	Magnetic Azimuth Detector Simulator TR: TO 33D2-8-359-1 (2128940)										
19.5.1	Align/Troubleshoot/Repair								-	-	-
19.5.2	Calibrate								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
19.6	Microwave Noise Analyzer TR: TO 33D7-10-77-4 (1992602)										
19.6.1	Align/Troubleshoot/Repair								-	-	-
19.6.2	Calibrate								-	-	-
19.7	Microwave Synthesizer System (MSS) TR: TO 33A1-8-792, 3, 4 (65704( ))										
19.7.1	Align/Troubleshoot/Repair								-	-	-
19.7.2	Calibrate								-	-	-
19.8	Modulated Microwave Source (Watkins-Johnson) TR: TO 33DA52-17-1 (WJ1221-23)										
19.8.1	Use								-	-	-
19.8.2	Align/Troubleshoot/Repair								-	-	-
19.8.3	Calibrate								-	-	-
19.9	Programmable Waveform Generator TR: TO 33A1-8-795-1 (157S409)										
19.9.1	Align/Troubleshoot/Repair								-	-	-
19.9.2	Calibrate								-	-	-
19.10	RF Measurement/Stimuli Drawers TR: TO 33A1-5-417-1 (661004 ( ))										
19.10.1	Align/Troubleshoot/Repair								-	-	-
19.10.2	Calibrate								-	-	-
19.11	Sampling Waveform Digitizing System (SWDS) TR: 33K3-4-1206-15										
19.11.1	Align/Troubleshoot/Repair								-	-	-
19.11.2	Calibrate										
19.12	Supervisory Control System Test Set TR: TO 33D4-6-521-1 (A/E24T136)										
19.12.1	Align/Troubleshoot/Repair								-	-	-
19.12.2	Calibrate								-	-	-
19.13	Suppressed Carrier Modulator TR: TO 33D7-3-160-8-9-1 (2129664)										
19.13.1	Align/Troubleshoot/Repair								-	-	-
19.13.2	Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
19.14 TEWS Intermediate Support System (TISS) TR: TO 33D7-38-251-1 (AN/ALM-246)										
19.14.1 Align/Troubleshoot/Repair								-	-	-
19.14.2 Calibrate								-	-	-
19.15 Transfer Function Analyzer TR: TOs 33D7-10-79-1 (1993219), 33D7-10-153-1 (3594971)										
19.15.1 Align/Troubleshoot/Repair								-	-	-
19.15.2 Calibrate								-	-	-
19.16 Waveguide Interlocks TR: TO 33D7-35-58-1 (2132433)										
19.16.1 Align								-	-	-
19.16.2 Calibrate								-	-	-
19.17 X-Band Signal Source TR: TO 33A1-8-718-4 (2129570)										
19.17.1 Align/Troubleshoot/Repair								-	-	-
19.17.2 Calibrate								-	-	-
19.18 Weapons Control Test Set TR: TOs 33D5-3-46-1 (A/E24T-171), 33D5-16-72-1 (A/E24T-169), 33D5-30-4-1 (A/E24T-170)										
19.18.1 Align/Troubleshoot/Repair								-	-	-
19.18.2 Calibrate										
19.19 Weapons Firing Test Set Stray Voltage Detector TR: TO 33D5-3-46-1 (372-2/AO6G2621)										
19.19.1 Align/Troubleshoot/Repair								-	-	-
19.19.2 Calibrate								-	-	-
19.20 Ignition Test Set TR: TO 33D4-6-515-1 (A/E24T-116)										
19.20.1 Align/Troubleshoot/Repair								-	-	-
19.20.2 Calibrate								-	-	-
19.21 IFSS Signal Generator TR: TO 33A1-8-717-1 (1992604)										
19.21.1 Align/Troubleshoot/Repair								-	-	-
19.21.2 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
19.22 Mach Simulator TR: TO 33D4-6-518-1 (A/E24T-137)										
19.22.1 Use								-	-	-
19.22.2 Align/Troubleshoot/Repair								-	-	-
19.23 Walk-around Test Set TR: TO 33D7-13-88-1 (AN/ALM-231)										
19.23.1 Align/Troubleshoot/Repair								-	-	-
19.23.2 Calibrate								-	-	-
19.24 Temperature Control Unit TR: TO 33C3-25-1 (70323-1)										
19.24.1 Align/Troubleshoot/Repair								-	-	-
19.24.2 Calibrate								-	-	-
19.25 Phase Sensitive Converter TR: TO 33D7-17-47-1 (1997006-( ))										
19.25.1 Align/Troubleshoot/Repair								-	-	-
19.25.2 Calibrate								-	-	-
19.26 AM/FM Signal Generator TR: TO 33A1-8-755-1 (1993120-( ))										
19.26.1 Align/Troubleshoot/Repair								-	-	-
19.26.2 Calibrate								-	-	-
19.27 X-Band Signal Generator TR: TO 33A1-8-722-1 (1993126-( ))										
19.27.1 Align/Troubleshoot/Repair								-	-	-
19.27.2 Calibrate								-	-	-
19.28 Precision Synchro Signal Converter (PSSC) TR: TO 33D7-17-74-1 (3597141-( ))										
19.28.1 Align/Troubleshoot/Repair								-	-	-
19.28.2 Calibrate								-	-	-
19.29 Secondary Power System Test Set TR: TO 33D7-38-129-1 (68D170009-1001)										
19.29.1 Align/Troubleshoot/Repair								-	-	-
19.29.2 Calibrate								-	-	-
19.30 Microwave Signal Generator TR: TO 33A1-8-720-4 (1993213-( ))										
19.30.1 Align/Troubleshoot/Repair								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
19.30.2 Calibrate								-	-	-
19.31 Fuel Systems TMDE TR: TO 33D7-1-101 (68D290049-1001, 68D29007-1007, 68D290056-1003)										
19.31.1 Align/Troubleshoot/Repair								-	-	-
19.31.2 Calibrate								-	-	-
19.32 Xmitter Pulse Generator TR: TO 33A1-8-719-1 (1993215-1)										
19.32.1 Align/Troubleshoot/Repair								-	-	-
19.32.2 Calibrate								-	-	-
19.33 Data Link Simulator TR: TO 33D7-88-14-1 (ANGJM59)										
19.33.1 Align/Troubleshoot/Repair								-	-	-
19.33.2 Calibrate								-	-	-
19.34 TISS Standard Mismatch Equipment TR: TO 33D7-80-1193-1-1 (C280-192/193)										
19.34.1 Align								-	-	-
19.34.2 Calibrate								-	-	-
19.35 Microwave Signal Switching Unit (MSSU) TR: TO 33DA86-57-1 (6406804)										
19.35.1 Align/Troubleshoot/Repair								-	-	-
19.35.2 Calibrate								-	-	-
19.36 Special Test Station Support Equipment Low Noise Test System TR: Comm Data (8780A-K21)										
19.36.1 Use								-	-	-
19.36.2 Align/Troubleshoot/Repair								-	-	-
19.36.3 Calibrate								-	-	-
19.37 Flight Director Test Set TR: TO 33D3-4-150-1 (980L1)										
19.37.1 Use								-	-	-
19.37.2 Align								-	-	-
19.37.3 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
19.38	Electronic Test Set TR: TO 33D7-38-215-2 (AN/USM-603)										
19.38.1	Align/Troubleshoot/Repair										
19.38.2	Calibrate								-	-	-
19.39	AFCS System Test Set TR: TO 33D3-9-166-1 (AN/ASM-497)										
19.39.1	Align/Troubleshoot/Repair								-	-	-
19.39.2	Calibrate								-	-	
20	**F-15E PECULIAR ITEMS** TR: Specific Equipment TO and/or Comm Data										
20.1	STORES Management/Fire Control Subsystem TR: TOs 33D5-63-5-1 (A/E24T-197), 33D5-12-231-1 (A/E24T-198)										
20.1.1	Align/Troubleshoot/Repair								-	-	-
20.1.2	Calibrate										
20.2	RF Power Test Set TR: TO 33D5-12-152-1 (TS2059AWM18)										
20.2.1	Align/Troubleshoot/Repair								-	-	-
20.2.2	Calibrate								-	-	-
20.3	Calibration Module TR: TO 33D7-33-247-1 (654334-1)										
20.3.1	Align/Troubleshoot/Repair								-	-	-
20.3.2	Calibrate								-	-	-
20.4	Remote Map reader PIU TR: TO 33D7-50-1297-1 (A06G2860-1)										
20.4.1	Align/Troubleshoot/Repair								-	-	-
20.4.2	Calibrate								-	-	-
20.5	Air Inlet Control PIU TR: TO 33D7-50-1439-1 (A06G2864-1)										
20.5.1	Align/Troubleshoot/Repair								-	-	-
20.5.2	Calibrate								-	-	-
20.6	Air Data Computer TR: TO 33D7-50-1426-1 (A06G2865-1)										
20.6.1	Align/Troubleshoot/Repair								-	-	-
20.6.2	Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
20.7 UHF Receiver-Transmitter PIU TR: TO 33D7-50-1474-1 (A06G2867-1)										
20.7.1 Align/Troubleshoot/Repair								-	-	-
20.7.2 Calibrate								-	-	-
20.8 IFF Receiver-Transmitter PIU TR: TO 33D7-50-1401-1 (A06G2868-1)										
20.8.1 Align/Troubleshoot/Repair								-	-	-
20.8.2 Calibrate								-	-	-
20.9 TACAN Unit PIU TR: TO 33D7-50-1400-1 (A06G2869-1)										
20.9.1 Align/Troubleshoot/Repair								-	-	-
20.9.2 Calibrate								-	-	-
20.10 ILS Unit PIU TR: TO 33D7-50-1341-1 (A06G2870-1)										
20.10.1 Align/Troubleshoot/Repair								-	-	-
20.10.2 Calibrate								-	-	-
20.11 Antenna Noise Analyzer TR: TO 33D7-10-76-1 (1992518-4)										
20.11.1 Align/Troubleshoot/Repair								-	-	-
20.11.2 Calibrate								-	-	-
20.12 Guided Missile Launcher Test Set TR: TO 33D9-45-34-1 (A/E24T-140)										
20.12.1 Align/Troubleshoot/Repair								-	-	-
20.12.2 Calibrate								-	-	-
20.13 Armament System Test Set TR: TO 33D5-12-204-4 (AN/AWM-72)										
20.13.1 Align/Troubleshoot/Repair								-	-	-
20.13.2 Calibrate										
20.14 Coolant Processing Unit TR: TO 33D7-35-58-2 (3598386-3)										
20.14.1 Align/Troubleshoot/Repair								-	-	-
20.14.2 Calibrate								-	-	-
20.15 Microwave Interfaces TR: Comm Data (6457373-1)										
20.15.1 Align/Troubleshoot/Repair								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
20.15.2 Calibrate								-	-	-
21 F-16 TMDE TR: Specific Equipment TO and/or Comm Data										
21.1 Avionics Multiplexers (AMUX) TR: TO 33D7-45-73-1 (624-( ))										
21.1.1 Align/Troubleshoot/Repair								-	-	-
21.1.2 Calibrate								-	-	-
21.2 Emergency Power Unit (EPU) Test Set TR: TO 33D7-38-102-1 (912476-( ))										
21.2.1 Align/Troubleshoot/Repair								-	-	-
21.2.2 Calibrate								-	-	-
21.3 Permissive Action Link/Unique Signal Generator Multiplexer (PAL/USG/MUX) TR: TO 33D7-45-60-1 (568-( ))										
21.3.1 Align/Troubleshoot/Repair								-	-	-
21.4 Preload Armament Circuit Test Set TR: TO 33D5-3-47-1 (16U75060-( ))										
21.4.1 Align/Troubleshoot/Repair								-	-	-
21.4.2 Calibrate								-	-	-
21.5 STORES Management System (SMS) Breakout Box TR: TO 33D7-45-59-1 (16UE75517-( ))										
21.5.1 Align/Troubleshoot/Repair								-	-	-
21.5.2 Calibrate								-	-	-
21.6 STORES Management System (SMS) TR: TOs 33D5-63-3-1 (16UE75501-( )), 33D5-63-23-1 (SST)										
21.6.1 Align/Troubleshoot/Repair								-	-	-
21.6.2 Calibrate								-	-	-
21.7 STORES Release Equipment (SRE) TR: TO 33D5-63-2-1 (16UE75500-( )), 33D5-63-23-1 (SST)										
21.7.1 Align/Troubleshoot/Repair								-	-	-
21.7.2 Calibrate								-	-	-
21.8 Electrical Engine Test Set TR: TO 33D2-3-98-1 (729900)										
21.8.1 Align/Troubleshoot/Repair								-	-	-
21.8.2 Calibrate								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
21.9 Brake Pressure Test Set TR: TO 33D2-23-26-1 (10012-( ))										
21.9.1 Align/Troubleshoot/Repair								-	-	-
21.9.2 Calibrate								-	-	-
21.10 EPU Sensing Monitor TR: TO 33D7-86-26-1 (16U42554-1)										
21.10.1 Align/Troubleshoot/Repair								-	-	-
21.10.2 Calibrate								-	-	-
21.11 Display Monitor TR: TO 33D7-38 (606*20)										
21.11.1 Troubleshoot/Repair								-	-	-
21.11.2 Calibrate										
21.12 Service Life Monitor Test Set TR: TO 33D7-38-103-1 (7953A77-( ))										
21.12.1 Align/Troubleshoot/Repair								-	-	-
21.12.2 Calibrate								-	-	-
21.13 Engine Warning Test Set TR: TO 33D2-19-12-1 (16UE23510-( ))										
21.13.1 Align/Troubleshoot/Repair								-	-	-
21.13.2 Calibrate								-	-	-
21.14 INU Battery Tester TS TR: TO 35C3-2-82-1 (16U74512-( ))										
21.14.1 Use								-	-	-
21.14.2 Align/Troubleshoot/Repair								-	-	-
21.14.3 Calibrate								-	-	-
21.15 Calibration Adapter TR: TO 33D7-38-306-1 (2215100-() F-16)										
21.15.1 Align								-	-	-
21.15.2 Troubleshoot/Repair								-	-	-
21.15.3 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES		2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
		A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
22	**SPECIAL TMDE** TR: 33K-1-100-1, 33K Series										
22.1	Combustible/Toxic Gas Alarms/Analyzers TR: TOs 11H2-9-1 (AE23T4), 11H5-14-1 (R2), 11H5-20-1 (TBC-1), 11H5-35-1 (514M); Comm Data (M8A1,PGM-50 SERIES)										
22.1.1	Align/Troubleshoot/Repair								-	-	-
22.1.2	Calibrate								-	-	-
22.2	TACAN Test Set TR: TOs 33D2-8-356 (AN/ARM-135A), 33D7-71-23 (AN/ARM-162)										
22.2.1	Align/Troubleshoot/Repair								-	-	-
22.2.2	Calibrate								-	-	-
22.3	ILS/VOR Standards TR: Comm Data (5401, CIVS, ZIFOR)										
22.3.1	Use								-	-	-
22.3.2	Align/Troubleshoot/Repair								-	-	-
22.3.3	Calibrate								-	-	-
22.4	ILS/VOR Test Sets TR: TOs 33A1-3-504 (AN/ARM-186), 33D7-71-52-1 (AN/ARM-201)										
22.4.1	Align/Troubleshoot/Repair								-	-	-
22.4.2	Calibrate								-	-	-
22.5	IFF/SIF Transponder Test Set TR: TOs 33A1-3-426 (AN/UPM-137A), 33D7-4-14-9-1, 2, 4 (AN/UPM-155), 33D7-29-52-1 (AN/APM424V( )), 33D9-62-5 (AN/APM-270V3); Comm Data (AN/APM-480)										
22.5.1	Align/Troubleshoot/Repair								-	-	-
22.5.2	Calibrate								-	-	-
22.6	Joint Oil Analysis Program TR: TOs 33A6-7-24 (A/E 35U-3), 33B4-2-29-1 (Spectroil M)										
22.6.1	Align/Troubleshoot/Repair								-	-	-
22.6.2	Calibrate								-	-	-
22.7	Engine Trim Boxes, JetCal Test Set TR: TOs 33D4-6-555-4 (BH112JB40), 33D4-6-556-1 (A/E24T141/PWA 50081), 33D7-3-175-11 (H301-( ))										
22.7.1	Align/Troubleshoot/Repair								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
22.7.2 Calibrate								-	-	-
22.8 Aircraft Engine Test Stand, Test Stand Calibration Trailer TR: TOs 00-25-238, 33D4-6-212-44 (AM 37T-20, AM 37T-21), 33D4-6-680 (AM 99T-2)										
22.8.1 Use								-	-	-
22.8.2 Align/Troubleshoot/Repair								-	-	-
22.8.3 Calibrate								-	-	-
22.9 Munitions Test Set TR: TO 33D5-24-14-2 (AN/GJM-55); Comm Data (AN/GJM-64)										
22.9.1 Align/Troubleshoot/Repair								-	-	-
22.9.2 Calibrate								-	-	-
22.10 Air Data/Environmental Test Sets TR: TOs 33D2-39-26-1 (TTU 415( )), 33D7-3-60 (TTU 205( ))										
22.10.1 Use								-	-	-
22.10.2 Align/Troubleshoot/Repair								-	-	-
22.10.3 Calibrate								-	-	-
22.11 Emergency Radio Test Set/Telecommunications Service Monitor TR: TOs 33D7-71-42-1 (TS24B), 33A1-12-1420-1 (TS-4317-1), 33D7-4-87-1 (2947)										
22.11.1 Align/Troubleshoot/Repair								-	-	-
22.11.2 Calibrate								-	-	-
22.12 Transmission/Telecommunication TMDE TR: TOs 33A1-3-533-2 (HATS2), 33A1-8-1041 (), 33A1-13-505-1 (3551A, 4935A); Comm Data (FM/AM1500, 702)										
22.12.1 Align/Troubleshoot/Repair								-	-	-
22.12.2 Calibrate								-	-	-
22.13 Missile Guidance TMDE TR: TOs 33D5-12-187-1 (AN/ASM-184( )V2), 33D9-54-62-1 (AN/DSM-157), 33D9-61-39-1 (AN/DSM-129); Comm Data (TS4044( ), AN/DSM-162)										
22.13.1 Use								-	-	-
22.13.2 Align/Troubleshoot/Repair								-	-	-
22.13.3 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
22.14 Doppler radar TMDE/Radar Guns TR: Comm Data (K15, KR10SP, S900-12)										
22.14.1 Use								-	-	-
22.14.2 Troubleshoot/Repair								-	-	-
22.14.3 Calibrate								-	-	-
22.15 Sound Calibration System TR: Comm Data (U9801, QC-10)										
22.15.1 Use								-	-	-
22.15.2 Align/Troubleshoot/Repair								-	-	-
22.15.3 Calibrate								-	-	-
22.16 Sound/Audio TMDE TR: Comm Data (9DB310, DB3100, MK( ))										
22.16.1 Use								-	-	-
22.16.2 Align/Troubleshoot/Repair								-	-	-
22.16.3 Calibrate								-	-	-
22.17 Infrared Target Simulator TMDE TR: TO 33D9-14-70-1 (SM787DSM)										
22.17.1 Use								-	-	-
22.17.2 Align/Troubleshoot/Repair								-	-	-
22.17.3 Calibrate								-	-	-
22.18 Interrogator/Transponder Electronic Warfare Systems TMDE TR: TO 33D7-8-115-1 (AN/APM-427); Comm Data AN/PLM-4)										
22.18.1 Use								-	-	-
22.18.2 Align/Troubleshoot/Repair								-	-	-
22.18.3 Calibrate								-	-	-
22.19 LANTIRN Support Equipment TR: TO 33D7-45-90-8-1 (AN/AAM-82)										
22.19.1 Use								-	-	-
22.19.2 Align/Troubleshoot/Repair								-	-	-
22.20 Radio receiver Test Sets TR: TO 33D7-36-42-1 (AN/GRM-112), 33A1-12-1420-1 (TS-4317)										
22.20.1 Use								-	-	-
22.20.2 Align/Troubleshoot/Repair								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
22.20.3 Calibrate								-	-	-
22.21 Countermeasures Test Set TR: TOs 33D7-13-75 (AN/ALM-177( )), 33D7-13-288-1 (AN/ALM-288); Comm Data (AN/ALM-233C)										
22.21.1 Use								-	-	-
22.21.2 Align/Troubleshoot/Repair								-	-	-
22.21.3 Calibrate								-	-	-
22.22 Angle Position Indicator TR: TOs 33AA45-7 (8300( )), 33D7-20-72-1 (545A)										
22.22.1 Use								-	-	-
22.22.2 Align/Troubleshoot/Repair								-	-	-
22.22.3 Calibrate								-	-	-
22.23 Synchro/Resolver Standard TR: TOs 33D2-8-302 (A202S5), 33D7-8-98-1 (530S741)										
22.23.1 Use								-	-	-
22.23.2 Align/Troubleshoot/Repair								-	-	-
22.23.3 Calibrate								-	-	-
22.24 Fuel Quantity Test Sets TR: TO 33D2-3-86 (GTF-6)										
22.24.1 Align/Troubleshoot/Repair								-	-	-
22.24.2 Calibrate								-	-	-
22.25 RF Transmission Line Test Set TR: Comm data (AN/USM-638, 8328A)										
22.25.1 Use								-	-	-
22.25.2 Align/Troubleshoot/Repair								-	-	-
22.25.3 Calibrate								-	-	-
22.26 Oxygen Regulator Field Tester TR: TOs 33D2-10-55-1 (31TA655-2), 33D2-10-67-1 (3300223-6001)										
22.26.1 Align/Troubleshoot/Repair								-	-	-
22.26.2 Calibrate								-	-	-
22.27 Defibrillator Testing Device TR: Comm Data (3000, 3100B)										
22.27.1 Align/Troubleshoot/Repair								-	-	-
22.27.2 Calibrate								-	-	-

ATTACHMENT 2

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
22.28 Safety Analyzer TR: Comm Data (431F, 501PR)										
22.28.1 Align/Troubleshoot/Repair								-	-	-
22.28.2 Calibrate								-	-	-
22.29 Radar Test Sets TR: TO 33D7-44-225 (AN/UPM-145)										
22.29.1 Align/Troubleshoot/Repair								-	-	-
22.29.2 Calibrate								-	-	-
22.30 Aircraft Compass calibration Test Sets TR: TO 5N3-3-7 (MC1-( ))										
22.30.1 Align/Troubleshoot/Repair								-	-	-
22.30.2 Calibrate								-	-	-
22.31 Aircraft Electrical Wiring Test Sets TR: TO 33D7-38-79-1 (AN/USM-430)										
22.31.1 Align/Troubleshoot/Repair								-	-	-
22.31.2 Calibrate								-	-	-
22.32 Night Vision Test Sets TR: Comm Data (ANV-126-085-CAL, ANV-20-20, ANV-126-( ))										
22.32.1 Align/Troubleshoot/Repair								-	-	-
22.32.2 Calibrate								-	-	-
22.33 Radiometer TR: Comm Data (12-550)										
22.33.1 Use								-	-	-
22.34 Vector Network Analyzer TR: Comm Data (SM 4515)										
22.34.1 Use								-	-	-
22.34.2 Align/Troubleshoot/Repair								-	-	-
22.34.3 Calibrate								-	-	-
22.35 Digital Barometer/Altimeter Set TR: TO 33M1-26M62 (ML658GM)										
22.35.1 Align/Troubleshoot/Repair								-	-	-
22.35.2 Calibrate								-	-	-

1. TASKS, KNOWLEDGE AND TECHNICAL REFERENCES	2. Core Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)		
	A	B	A	B	C	D		A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
	5	7	Training Start	Training Complete	Trainee Initials	Trainer Initials		(1) Crse	(1) CDC	(1) CDC
22.36 Manside Test Set TR: TO 33D2-10-68-1 (F278-5700-1); Comm Data (TTU 529E)										
22.36.1 Align/Troubleshoot/Repair								-	-	-
22.36.2 Calibrate								-	-	-
22.37 Portable Balancing System TR: TO 33A1-16-1 (PBS-4100)										
22.37.1 Align								-	-	-
22.37.2 Troubleshoot/Repair								-	-	-
22.37.3 Calibrate								-	-	-
22.38 Common Munitions Test Set TR: TO 33D7-3-372-1 (AN/GYQ79) TO 33D9-53-108-1 (AN/GYQ75)										
22.38.1 Align								-	-	-
22.38.2 Troubleshoot/Repair								-	-	-
22.38.3 Calibrate								-	-	-
22.39 Laser Guided Bomb Test Set TR: Comm Data (200535434-30), (TTU595/E)										
22.39.1 Calibrate								-	-	-
22.40 Laser Detecting Test Set TR: Comm Data (200535534-10), (TTU-604 A/E)										
22.40.1 Use								-	-	-
22.41 Joint Service Mask Leakage Tester Calibration Set TR: Comm Data (JSMLT-V109)										
22.41.1 Use								-	-	-
22.42 Joint Service Mask Leakage Tester TR: Comm Data (JSMLT)										
22.42.1 Calibrate								-	-	-

Section B - Electronic Principles CTS E3AQR2P031 048C

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5.4.1 DC	A
5.4.2 AC	A
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5.5.1 Theory	A
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11.1.2 Flip Flops	B
11.2 Digital to Analog (DA) and Analog to Digital (AD) Converters Theory	B

12 BASIC COMMUNICATIONS THEORY	
12.1 Antenna	A
12.2 Transmission Lines	A
12.3 Data Bus	A
12.4 Waveguide	A
12.5 Fiber Optics	A
12.6 Transmitters	
12.6.1 Frequency Modulation (FM)	B
12.6.2 Amplitude Modulation (AM)	B
12.7 Receivers	
12.7.1 Frequency Modulation (FM)	B
12.7.2 Amplitude Modulation (AM)	B
12.8 AM Receiver Signals	
12.8.1 Measure Radio Frequency (RF)	1a
12.8.2 Measure Intermediate Frequency (IF)	1a
12.8.3 Measure Audio Frequency (AF)	1a
12.8.4 Measure Local Oscillator (LO) Output	1a

Section C - COURSE OBJECTIVE LIST

1. Measurement. Each objective is indicated as follows: **W** indicates task or subject knowledge which is measured using a written test, **PC** indicates required task performance which is measured with a performance progress check, and **PC/W** indicates separate measurement of both knowledge and performance elements using a written test and a performance progress check.

2. Standard. The standard is 70% on written examinations. Standards for performance measurement are indicated in the objective and delineated on the individual progress checklist. Instructor assistance is provided as needed during the progress check, and students may be required to repeat all or part of the behavior until satisfactory performance is attained.

3. Most task performance is taught to the "2b" proficiency level which means the students can do most parts of the task, but does need assistance on the hardest parts of the task (partially proficient). The student can also determine step-by-step procedures for doing the task.

4. Course Objective List. These objectives are listed in the sequence taught by Block of Instruction.

4.1. Initial Skills Course. E3ABR2P031 0B1B; Precision Measurement Equipment Laboratory Apprentice

4.1.1. Block I – Metrology Principles

2a. Given reference materials, identify terms and definitions that apply to Metrology and the AFMETCAL program with a minimum of 70% accuracy. Task(s): 12.1 MEAS: PC/W

2b. Given reference materials, use technical information with a minimum of 70% accuracy. Task(s): 5.3 MEAS: PC/W

2c. Identify terms applying to Operational Security (OPSEC) that are specific to AFSC 2P0X1 with a minimum of 70% accuracy. Task(s): 2.1 MEAS: PC/W

2d. Given reference materials, identify facts regarding the proper use and care of hand tools with a minimum of 70% accuracy. Task(s): 12.5 MEAS: PC/W

2e. Identify terms and characteristics of cables and connectors with a minimum of 70% accuracy. Task(s): 12.4 MEAS: PC/W

2f. Identify terms and characteristics of Surface Mount Technology with a minimum of 70% accuracy. Task(s): 12.3 MEAS: PC/W

2g. Given reference materials, identify principles associated with Electrostatic Discharge with a minimum of 70% accuracy. Task(s): 12.2 MEAS: PC/W

3a. Identify the principles of traceability and substitution of TMDE standards with a minimum of 70% accuracy. Task(s): 12.7 MEAS: PC/W

3b. Given appropriate equations, perform various calculations involving error, correction and correction factors with a minimum of 70% accuracy. Task(s): 13.1.13 MEAS: PC/W

3c. Given appropriate equations, calculate tolerances using equipment specifications with a minimum of 70% accuracy. Task(s): 13.1.18 MEAS: PC/W

3d. Identify general principles about interpolating readings, charts, or graphs with a minimum of 70% accuracy. Task(s): 13.1.15 MEAS: PC/W

3e. Identify basic facts about uncertainty analysis with a minimum of 70% accuracy. Task(s): 13.2.4 MEAS: PC/W

3f. Identify the principles of gross, systematic, and random errors with a minimum of 70% accuracy. Task(s): 13.1.14 MEAS: PC/W

4a. Identify basic facts about the potential safety hazards associated with the 2P0X1-career field with a minimum of 70% accuracy. Task(s): 3.1 MEAS: PC/W

4c. Identify basic facts and terms for maintaining hazardous materials. Task(s): 4.1, 4.2, 4.3 MEAS: PC/W

4.1.2. Block II – TMDE Use and Maintenance

1a. Given technical data, soldering tools and appropriate parts, solder a wire to a terminal connector with no more than three (3) instructor assists. Task(s): 13.3.7.1 MEAS: PC

(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

1b. Given technical data, soldering tools and appropriate parts, desolder a wire from a terminal connector with no more than three (3) instructor assists. Task(s): 13.3.7.1 MEAS: PC

(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

1c. Given technical data, soldering tools and appropriate parts, solder three components to a printed circuit board with no more than three (3) instructor assists. Task(s): 13.3.7.2 MEAS: PC

(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

1d. Given technical data, soldering tools and appropriate parts, desolder three components from a printed circuit board with no more than three (3) instructor assists. Task(s): 13.3.7.2 MEAS: PC

(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

1e. Given technical data, soldering tools and appropriate parts, solder a tinned wire into a pin for use in a multi-pin connector with no more than three (3) instructor assists. Task(s): 13.3.7.3 MEAS: PC

(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

1f. Given technical data, soldering tools and appropriate parts, desolder a wire from a pin used in a multi-pin connector with no more than three (3) instructor assists. Task(s): 13.3.7.3 MEAS: PC

(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

2a. Given technical data, tools and appropriate parts, splice two wires together using a crimp connector with no more than three (3) instructor assists. Task(s): 13.3.8.1 MEAS: PC
(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

2b. Given technical data, tools and appropriate parts, crimp a terminal lug to a wire with no more than three (3) instructor assists. Task(s): 13.3.8.1 MEAS: PC
(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

2c. Given technical data, tools and appropriate parts, assemble a solderless coaxial cable connector to a coaxial cable with no more than three (3) instructor assists. Task(s): 13.3.8.2 MEAS: PC
(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

2d. Given technical data, tools and appropriate parts, crimp a wire into a pin for use in a multi-pin connector with no more than three (3) instructor assists. Task(s): 13.3.8.3 MEAS: PC
(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

2e. Given technical data, tools and appropriate parts, assemble a multi-pin connector with no more than three (3) instructor assists. Task(s): 13.3.8.3 MEAS: PC
(1) Safety
(2) Procedures/Pre-laboratory
(3) Lab exercise

3a. Given a function generator, and TMDE measure specific signal parameters with no more than three (3) instructor assists. Task(s): 14.13.1, 14.15.1, 15.2.1, 15.17.1, 15.20.1 MEAS: PC/W
(1) Use Function generator
(2) Use Analog Multimeter
(3) Use Oscilloscope
(4) Use Digital Multimeter
(5) Use Electronic Counter/Timer

3b. Given TMDE and technical data, standardize and use a high accuracy digital multimeter with no more than one (1) instructor assist. Task(s): 14.14.1 MEAS: PC/W
(1) Standardize DMM
(2) Use DMM

3c. Given TMDE and technical data, troubleshoot a function generator to a faulty component with no more than two (2) instructor assists. Task(s): 13.24, 15.2.3 MEAS: PC/W

(1) Theory of Function Generator
(2) Troubleshooting Techniques
(3) Troubleshoot Function Generator

4.1.3. Block III - Meters

1a. Identify basic facts about Foreign Object Damage (FOD). Task(s): 13.3.3

1b. Given TMDE and technical data, calibrate an analog multimeter with no more than two (2) instructor assists. Task(s): 14.1.1, 14.12.1, 14.13.1, 14.13.4 MEAS: PC/W

(1) Use an instrument calibrator
(2) Use a resistance standard
(3) Use an analog multimeter
(4) Calibrate an analog multimeter

1c. Given TMDE and technical data, troubleshoot an analog multimeter to a faulty component with no more than two (2) instructor assists. Task(s): 14.13.3 MEAS: PC/W

1d. Given TMDE and technical data, align an analog multimeter with no more than two (2) instructor assists. Task(s): 14.13.2 MEAS: PC/W

2a. Given TMDE and technical data, perform an input wiring and fuse check with no more than two (2) instructor assists. Task(s): 13.3.4 MEAS: PC/W

2b. Given TMDE and technical data, calibrate a digital multimeter with no more than two (2) instructor assists. Task(s): 14.5.1, 14.15.1, 14.15.4, 14.30.1 MEAS: PC/W

(1) Use a high voltage probe
(2) Use a DC voltage divider
(3) Use a digital multimeter
(4) Calibrate a digital multimeter

2c. Given appropriate technical data, theoretically troubleshoot a digital multimeter to the faulty component with a minimum of 70% accuracy. Task(s): 14.15.3 MEAS: PC/W

(1) Schematic analysis of a digital voltmeter
(2) Theoretical troubleshooting

2d. Given TMDE and technical data, align a digital multimeter with no more than two (2) instructor assists. Task(s): 14.15.2 MEAS: PC/W

3a. Given TMDE and technical data, calibrate an AC voltmeter with no more than two (2) instructor assists. Task(s): 14.27.1, 14.27.4 MEAS: PC/W

(1) Use AC voltmeter
(2) Calibrate AC voltmeter

3b. Given TMDE and technical data, align an AC voltmeter with no more than two (2) instructor assists. Task(s): 14.27.2 MEAS: PC/W

4.1.4. Block IV - Advanced Measurement Techniques

1a. Given a digital multimeter, test oscillator, distortion analyzer, thermal voltage converter, and measuring receiver, measure specific signal parameters of generated signals with no more than three (3) instructor assists. Task(s): 15.6.1, 15.9.1, 15.10.1, 15.19.1, 16.1.1, 16.7.1 MEAS: PC/W

(1) Use Thermal Voltage Converter
(2) Use Test Oscillator
(3) Use Feedthrough Termination
(4) Use Distortion Analyzer
(5) Use Measuring Receiver
(6) Use Fixed Attenuator

1b. Given TMDE and technical data, calibrate a test oscillator with no more than three (3) instructor assists. Task(s): 15.6.4 MEAS: PC/W

1c. Given TMDE and technical data, troubleshoot a test oscillator with no more than two (2) instructor assists. Task(s): 15.6.3 MEAS: PC/W

1d. Given TMDE and technical data, align a test oscillator with no more than two (2) instructor assists. Task(s): 15.6.2 MEAS: PC/W

2a. Given a distortion analyzer and a ratio transformer, measure specific signal parameters of generated signals with no more than three (3) instructor assists. Task(s): 14.6.1, 15.10.1 MEAS: PC/W
(1) Use Distortion Analyzer
(2) Use Ratio Transformer

2b. Given TMDE and technical data, calibrate a distortion analyzer with no more than three (3) instructor assists. Task(s): 15.10.4 MEAS: PC/W

2c. Given TMDE and technical data, troubleshoot a distortion analyzer with no more than two (2) instructor assists. Task(s): 15.10.3 MEAS: PC/W

2d. Given TMDE and technical data, align a distortion analyzer with no more than two (2) instructor assists. Task(s): 15.10.2 MEAS: PC/W

4.1.5. Block V - Oscilloscope and Waveform Analysis

1a. Given TMDE and Technical Data, use an oscilloscope calibrator to generate specified outputs with no more than two (2) instructor assists. Task(s): 15.4.1 MEAS: PC/W

1b. Given TMDE and technical data, use a digitizing oscilloscope to measure specified outputs with no more than two (2) instructor assists. Task(s): 15.24.1 MEAS: PC/W

1c. Given TMDE and technical data, calibrate an oscilloscope with no more than two (2) instructor assists. Task(s): 15.20.4 MEAS: PC/W

1d. Given TMDE and technical data, troubleshoot an oscilloscope to a faulty stage with no more than two (2) instructor assists. Task(s): 15.20.3 MEAS: PC/W

1e. Given TMDE and technical data, perform selected alignments of an oscilloscope with no more than two (2) instructor assists. Task(s): 15.20.2 MEAS: PC/W

4.1.6. Block VI – Precise Frequency Measurement, Synthesis and Power

1a. Given appropriate equations, perform calculations involving power ratios, dBs, and dBms with a minimum of 70% accuracy. Task(s): 13.1.1 MEAS: PC/W

1b. Given a power meter, TMDE and applicable technical data, perform measurements in selected functions and ranges with no more than two (2) instructor assists. Task(s): 16.4.1 MEAS: PC/W

1c. Given the synthesized function generator, frequency synthesizer, applicable TMDE, and necessary technical data, generate specified outputs with no more than two (2) instructor assists. Task(s): 15.2.1, 15.8.1 MEAS: PC/W

(1) Generate specific signals using the 3325B Generator
(2) Generate specific signals using the 8340B Generator

1d. Identify facts regarding frequency synthesis with a minimum of 70% accuracy. Task(s): 13.1.17 MEAS: PC/W

1e. Given TMDE and applicable technical data, use precise frequency to calculate the frequency offset of a frequency standard internal oscillator with no more than one (1) instructor assist. Task(s): 15.14.1 MEAS: PC/W

2a. Given TMDE and applicable technical data, calibrate the power meter with no more than two (2) instructor assists. Task(s): 16.4.4, 16.16.1 MEAS: PC/W
(1) Generate specific levels with the Power Meter Calibrator
(2) Use of the 432A Power Meter
(3) Calibrate the Power Meter using the Power Meter Calibrator

2b. Given TMDE and applicable technical data, troubleshoot the power meter to the faulty component with no more than three (3) instructor assists. Task(s): 16.4.3 MEAS: PC/W

2c. Given TMDE and applicable technical data, align the power meter with no more than two (2) instructor assists Task(s): 16.4.2 MEAS: PC/W

3a. Given a frequency counter, TMDE and applicable technical data, perform measurements in selected functions and ranges with no more than two (2) instructor assists. Task(s): 15.17.1 MEAS: PC/W

3b. Given TMDE and applicable technical data, calibrate the frequency counter with no more than two (2) instructor assists. Task(s): 15.17.4 MEAS: PC/W

3c. Given TMDE and applicable technical data, troubleshoot the frequency counter to the faulty component with no more than three (3) instructor assists. Task(s): 15.17.3 MEAS: PC/W

4.1.7. Block VII – Signal Generation Measurements

1a. Identify basic facts and terms about frequency, time, and data domains with a minimum of 70% accuracy. Task(s): 13.1.16 MEAS: PC/W
(1) Frequency Domain
(2) Time Domain
(3) Data Domain

1b. Given a signal generator, function generator, and spectrum analyzer, measure specific signal parameters with no more than three (3) instructor assists. Task(s): 13.1.5, 15.2.1, 15.6.1, 15.13.1 MEAS: PC/W
(1) Use Signal Generator
(2) Use Function Generator
(3) Use Spectrum Analyzer
(4) Amplitude Modulation
(5) Frequency Modulation
(6) Pulse Modulation

1c. Given TMDE and technical information, calibrate a function generator with no more than three (3) instructor assists. Task(s): 15.2.4 MEAS: PC/W

1d. Given appropriate technical data, determine alignment procedures for a function generator with a minimum of 70% accuracy. Task(s): 15.2.2 MEAS: PC/W

2a. Given a signal generator, detector, oscilloscope, power meter, power sensor, and measuring receiver, measure specific signal parameters of generated signals with no more than three (3) instructor assists. Task(s): 15.11.1, 16.3.1, 16.4.1, 16.7.1, 16.8.1 MEAS: PC/W

(1) Use RF Detector
(2) Use Power Meter w/Sensor
(3) Use Measuring Receiver

2b. Given TMDE and technical information, calibrate a signal generator with no more than three (3) instructor assists. Task(s): 15.3.1, 15.6.4 MEAS: PC/W

2c. Given TMDE and technical information, troubleshoot a signal generator with no more than two (2) instructor assists per generator. Task(s): 15.6.3 MEAS: PC/W

2d. Given TMDE and technical information, align a signal generator with no more than two (2) instructor assists. Task(s): 15.6.2 MEAS: PC/W

4.1.8. Block VIII – Physical and Dimensional Measurements

1a. Given appropriate technical data, identify selected principles of physical and dimensional measurements with a minimum of 70% accuracy. Task(s): 13.5, 13.6, 13.7, 13.8, 13.11, 13.12, 13.14 MEAS: PC/W

(1) Temperature
(2) Humidity
(3) Mass and Weight
(4) Linear Dimensions
(5) Pressure
(6) Vacuum
(7) Torque

1b. Given appropriate technical data, identify basic facts and terminology associated with physical dimensional conversions and temperature standards. Task(s): 13.1.10, 13.1.11, 13.1.12, 17.9.1 MEAS: W

(1) Metric/English Unit Conversions
(2) Thermocouple Conversions
(3) Pressure Conversions
(4) Temperature standards

1c. Given appropriate technical data, identify the procedures for calibrating temperature-measuring TMDE with a minimum of 70% accuracy. Task(s): 17.10.1, 17.10.4 MEAS: PC/W

(1) Use Temperature-Measuring TMDE
(3) Calibrate Temperature-Measuring TMDE

2a. Given a scale, standard weight set, and necessary technical data, calibrate a scale with no more than two (2) instructor assists. Task(s): 17.22.1, 17.23.1, 17.23.4 MEAS: PC/W

(1) Use Mass/Weight Standards
(2) Use Scale
(3) Calibrate Scale

2b. Given TMDE and necessary technical data, calibrate a micrometer with no more than two (2) instructor assists. Task(s): 5.6, 17.1.1, 17.5.1, 17.5.4, 18.6.1 MEAS: PC/W

(1) Use Calibration and Correction Charts
(2) Use Gage Blocks
(3) Use Optical Flat
(4) Use Micrometer
(5) Calibrate Micrometer

2c. Given a pressure standard, a pressure gauge, and necessary technical data, use the pressure standard to calibrate one (1) pressure gauge with no more than two (2) instructor assists per gauge. Task(s): 17.17.1, 17.20.1, 17.20.4 MEAS: PC/W
(1) Use of Pressure Gauges
(2) Use of a Pressure Standard
(3) Calibration of Pressure Gauges

2d. Given a torque tester/mechanical loader, torque wrenches, and necessary technical data, use the torque tester/mechanical loader to calibrate two (2) different types of torque wrenches with no more than two (2) instructor assists per torque wrench. Task(s): 17.27.1, 17.28.1, 17.28.4 MEAS: PC/W
(1) Use Torque Wrenches
(2) Use Torque Standard
(3) Calibrate Torque Wrenches

4.1.9. Block IX – Standard PMEL Operations

1a. Given appropriate references, identify facts and terms related to a Metrology Laboratory with a minimum of 70% accuracy. Task(s): 12.1 MEAS: PC/W

2a. Using resources on the worldwide web, select the proper publication for maintenance and/or calibration for specific pieces of equipment with no more than one (1) instructor assist. Task(s): 5.2 MEAS: PC/W

2b. Using the FEDLOG system, research supply data with no more than two (2) instructor assists. Task(s): 5.4 MEAS: PC/W

2c. Using appropriate references, identify the procedures to complete an AF Form 2005 with a minimum of 70% accuracy. Task(s): 5.8 MEAS: PC/W

2d. Using appropriate references, identify the procedures to complete condition tags with a minimum of 70% accuracy. Task(s): 5.10 MEAS: PC/W

2e. Identify basic facts of Bench Stock with a minimum of 70% accuracy. Task(s): 12.6 MEAS: PC/W

2f. Using appropriate references, identify the procedures to initiate a TO improvement report with a minimum of 70% accuracy. Task(s): 5.5 MEAS: PC/W

3a. Given appropriate references, identify the procedures for performing preventative maintenance inspections with a minimum of 70% accuracy. Task(s): 13.3.5 MEAS: PC/W

3b. Given appropriate technical data, identify basic facts and terms of the Maintenance Data Documentation System with a minimum of 70% accuracy. Task(s): 11.1 MEAS: PC/W

3c. Given maintenance situations, use the PAMS to schedule equipment into and out of the laboratory and process maintenance actions with no more than two (2) instructor assists. Task(s): 9.2, 11.1.1.1 MEAS: PC/W

3d. Given calibration scenarios and appropriate references, complete applicable TMDE documentation with no more than two (2) instructor assists. Task(s): 5.7 MEAS: PC/W

4.1.10. Block X – Calibration Ready Lab

1a. Given appropriate test equipment and calibration procedures, calibrate a passive analog multimeter with no more that one (1) instructor assist. Task(s): 14.13.4 MEAS: PC

(1) Mission Ready Technician Laboratory Procedures

(2) Calibration of Passive Analog Multimeter

2a. Given appropriate test equipment and calibration procedures, calibrate a digital multimeter with no more than one (1) instructor assist. Task(s): 14.15.4 MEAS: PC

3a. Given appropriate test equipment and calibration procedures, calibrate a frequency counter with no more than one (1) instructor assist. Task(s): 15.17.4 MEAS: PC

4a. Given appropriate test equipment and applicable calibration procedure, calibrate a digitizing oscilloscope with no more than one (1) instructor assist. Task(s): 15.24.4 MEAS: PC

5a. Given appropriate test equipment and calibration procedure, calibrate a pressure gauge with no more than one (1) instructor assist. Task(s): 17.20.3 MEAS: PC

6a. Given appropriate test equipment and calibration procedure, calibrate a torque wrench with no more than one (1) instructor assist. Task(s): 17.28.4 MEAS: PC

(1) Theory of SG1146/U

(2) Troubleshooting Techniques

(3) Troubleshoot 1146/U Function Generator

Section D - SUPPORT MATERIAL

NOTE: There are currently no support material requirements. This area is reserved.

Section E – Training Course Index

1. Purpose. This section of the CFETP identifies training courses available for the 2PXXX specialty for broadening and expanding career field knowledge. Refer to Education and Training Course Announcement (ETCA), for information on all courses listed in this index. For further information on the following courses, contact the OPR at:

335 TRS/TRR
709 Meadows Drive, Ste 253B
Keesler AFB, MS 39534-2237
DSN 597-5381

2. Air Force In-Residence Courses.

COURSE NUMBER USER	TITLE	LOCATION	USER
E3AQR2P031 048C AF	Electronic Principles (EP)	Keesler AFB	AF, FMS
E3ABR2P031 0B1B AF	Precision Measurement Equipment Laboratory (PMEL) Apprentice	Keesler AFB	AF, FMS
E8AZR2P051 0P1B AF	Physical Measurement and Calibration Journeyman	Keesler AFB	AF, FMS
E3AZR2P051 0A1C AF	Advanced Calibration, Measurement, and Diagnostics	Keesler AFB	AF, FMS
E3AZR2P051 0T1B AF	TACAN/DOD AIMS Diagnostic Principles	Keesler AFB	AF, FMS

3. Air Force Institute of Advanced Distributed Learning (AFIADL) Courses.
http://www.au.af.mil/au/afiadl/ For further information on the following courses, contact the OPR at:

335 TRS/UODA
709 Meadows Drive, Ste 255
Keesler AFB, MS 39534-2237
Email: cdc2p0x1@keesler.af.mil

COURSE NUMBER USER	TITLE	LOCATION	USER
2P051A	Precision Measurement and Calibration Journeyman	AFIADL	AF
2P051B	Precision Measurement and Calibration Journeyman	AFIADL	AF
2P071	Precision Measurement and Calibration Craftsman	AFIADL	AF

4. Exportable Courses.

COURSE NUMBER	TITLE	LOCATION
J6AZWXXXXX 0G1A	Air Force T.O. System (Gen.)	ADL
J6AZWXXXXX 0A1A	Air Force T.O. System (Adv.)	ADL
J6AZW2AX5X 0F1A	IMDS for Flight Line	ADL
J6AZW2AX5X 0S1A	IMDS for Supervisors	ADL

Type 6 courses are hosted by the Advanced Distributed Learning System (ADLS) site at **https://aetc.csd.disa.mil**

5. Training Detachment (TD) Courses: There are currently no applicable TD courses.

Section F- *MAJCOM Unique Requirements*.

NOTE: There are currently no MAJCOM unique requirements. This area is reserved.